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## A Study of the After-results of Abdominal Operations on the Pelvic Organs: Based on a Series of 1000 Consecutive Cases.


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### INTRODUCTION.

IN presenting the after-results of some of my abdominal operations, it is proper that I should state the lines upon which the investigations have been carried out. As the after-results of operations for diseases of the uterus, ovaries and tubes form the subject of the enquiry, I have collected all the operations of this class among my first 1200 abdominal operations, that is down to July 24, 1909. This gives 1001 cases of operations on the pelvic organs, the remainder consisting of operations for appendicitis, nephrectomies, resection of the bowel, radical cure of scar hernia, exploratory operations for irremovable malignant disease, and sundry operations that may be classed as miscellaneous.

*Classification.* Inasmuch as I was concerned with after-results, the classification had to be considered from this point of view, and not solely from the point of view of the operation performed. For example, if a patient underwent an ovariotomy for a tumour of one side, and subsequently required a second ovariotomy for a tumour of the other side, the latter operation would be classed among "bilateral salpingo-oöphorectomies" because as far as after-results are concerned the effect would be the same as a double ovariotomy. Similarly if a patient had had a double ovariotomy and subsequently required hysterectomy for carcinoma of the uterus, the second operation would not appear under simple hysterectomies, but would be classed under the head of "total extirpation" since after the second operation she would have neither uterus nor ovaries left.

It is desirable that a classification should be as simple as possible; and the one that is given here, which is the outcome of a good deal of consideration, appeared to be the simplest that would meet the case. It comprises 7 groups, each of which has two or more divisions. There are, in all, 21 of these divisions, and they have been indicated by consecutive letters from A to U to facilitate reference.

There are some cases that do not correspond strictly to any group, those namely in which both tubes and one ovary were removed and one ovary was preserved. As regards the ovary they belong to group 1; as regards the tubes they belong to group 2. To make a separate group of them with further divisions appeared an unnecessary complication, and I therefore decided to include them in group 1 from which they differ, as far as after-results are concerned, in one point only, that is, that no pregnancy can follow.

In many of the groups, when two or more morbid conditions were present, the classification refers to the principal one. For example, if a large ovarian tumour were present, and a salpingo-oöphoritis of the other tube and ovary necessitated their removal, the case would appear in division D; if an operation were undertaken for double pyosalpinx and an ovarian cyst were present also, the case would be placed in division E; in division F there was extra-uterine pregnancy of one side, and an ovarian cyst, a pyosalpinx or, rarely, a second extra-uterine pregnancy on the other side, removed either at the same time or at a previous operation. So also when fibroids were complicated by ovarian tumours or inflamed tubes, the position in the table would depend on the more important feature of the case.

CLASSIFICATION TABLE.

| | DIVISONS. Cases | Deaths | GROUPS. Cases | Deaths |
|---|---|---|---|---|
| 1. Unilateral Salpingo-oöphorectomy. | | | | |
| A. For tumours | 122 | 4 | | |
| B. For inflammatory disease | 44 | 3 | | |
| C. For extra-uterine pregnancy | 52 | 3 | | |
| | | | 218 | 10 |
| 2. Bilateral Salpingo-oöphorectomy. | | | | |
| D. For tumours | 42 | 5 | | |
| E. For inflammatory disease | 100 | 4 | | |
| F. For extra-uterine pregnancy | 18 | 0 | | |
| G. For uterine fibroids | 2 | 0 | | |
| | | | 162 | 9 |
| 3. Abdominal Hysterectomy. | | | | |
| H. For fibroids | 76 | 6 | | |
| I. For uterine fibrosis | 9 | 0 | | |
| J. For carcinoma | 8 | 1 | | |
| | | | 93 | 7 |

| | | | | |
|---|---|---|---|---|
| 4. Hysterectomy and Unilateral Salpingo-oöphorectomy. | | | | |
| K. For fibroids | 64 | 2 | | |
| L. For fibrosis | 9 | 0 | | |
| | | | 73 | 2 |
| 5. Hysterectomy and Bilateral Salpingo-oöphorectomy. | | | | |
| M. For ovarian tumours | 16 | 0 | | |
| N. For uterine fibroids and fibrosis | 68 | 2 | | |
| O. For inflammatory disease | 23 | 4 | | |
| P. For carcinoma of the uterus | 14 | 1 | | |
| | | | 121 | 7 |
| 6. Conservative Operations for Fibroids. | | | | |
| Q. Abdominal myomectomy | 20 | 1 | | |
| R. Myomectomy and unilateral salpingo-oöphorectomy | 6 | 0 | | |
| | | | 26 | 1 |
| 7. Operations for displacements. | | | | |
| S. Hysteropexy and myomectomy | 26 | 1 | | |
| T. Hysteropexy | 220 | 4 | | |
| U. Hysteropexy and unilateral salpingo-oöphorectomy | 62 | 0 | | |
| | | | 308 | 5 |
| | 1001 | 41 | 1001 | 41 |

*Primary Mortality.* Although this communication is concerned with the ultimate rather than immediate results of operations, it is perhaps desirable that I should say a few words about the primary mortality.

There is a rather striking difference in the mortality of the earlier and the later cases. The first 500 operations cover a period from September, 1894, to June, 1906; and among these were 33 deaths. The last 500 extend from June, 1906, to July, 1909, and among them there were 8 deaths. Variations in the run of bad cases may partly account for the difference; and some of the improvement may be attributed to better methods and greater experience. The causes of death were as follows:—

*Anæmia and Heart Failure.* Two cases: both were cases of ruptured tubal pregnancy.

*Heart Failure.* Eight cases: 5 were cases of hysterectomy; in one the patient died suddenly on the 19th day as she was getting back into bed, and in another the patient succumbed to a fatty heart on the 17th day; the others died in 14 hours, 4 days and 7 days respectively. One was a case of double ovariotomy with heart failure on the 3rd day; one was a case of unilateral pyosalpinx and appendix abscess, with death in 36 hours, and the last was a total extirpation for

carcinoma of the uterus with death in 48 hours from fatty heart. In none of these was peritonitis present.

*Shock* was responsible for 7 deaths: two of these were cases of ovariotomy for large ovarian tumours; in one of them the cyst had ruptured, setting up peritonitis; two were cases of double ovariotomy for malignant ovarian tumours; one was a case of acute pyosalpinx with ulceration into the sigmoid; one was a total extirpation for a septic uterus; and one was a case of ruptured tubal pregnancy.

*Pneumonia or Broncho-pneumonia.* Five cases; one was a myomectomy during pregnancy, where a re-opening was necessary on account of secondary hæmorrhage; the other 4 were cases of hysteropexy: one died of double basal pneumonia on the 7th day, the others of broncho-pneumonia on the 3rd, 4th and 8th days respectively.

*Pulmonary Embolism* caused 2 deaths: one after double ovariotomy for dermoids, the other after hysterectomy for fibroids: both occurred on the 11th day.

*Secondary Hæmorrhage* caused 2 deaths: one was a case of fibroids where an enormous tumour intimately connected with the bowel had to be left behind; and the other was a case of hæmorrhage from adhesion-sites after removal of diseased appendages.

*Intestinal Obstruction.* Three cases: one was a case of hysterectomy on the 4th day; one was a case of total extirpation for inflammatory disease on the 3rd day; and one on the 32nd day after the removal of a large deep-seated parovarian cyst.

*Hæmorrhage into the Pancreas* was the cause of death in a case of ovariotomy: no other lesion was found.

*Sepsis.* Nine cases: two of these were cases of puerperal sepsis: in one there was a left pyosalpinx with thrombosis of the left ovarian vein; she died of septic pneumonia 5 weeks after the operation; the other was a case of suppurating dermoid with perforation and intra-pelvic abscess following labour. Two were cases of operation for double pyosalpinx: one of these was a tuberculous pyosalpinx, and tuberculous sinuses were present in several places. Two were cases of hysterectomy and one of myomectomy for fibroids; one was a hysterectomy for carcinoma and one was a total extirpation for pyosalpinx.

Lastly, one patient who was operated upon for advanced malignant growth died on the 7th day of the progress of the disease; and one patient became maniacal after an operation for pyosalpinx, and died suddenly from getting some fluid (paraldehyde) into her trachea while swallowing.

We may now proceed to the question of after-results. The method of the enquiry was this: Printed forms were used, of which an example is subjoined. Patients were written to and asked to come up for an interview, when the form was filled up, an examination made, and the results of the examination entered under the heading of "present condition." With patients living too far away for an interview a form was sent and they were asked to fill it up and to request their medical attendant to fill up the "present condition." In this way reports were received from distant country places, and from such far away regions as Jamaica, South Africa, and India. I have been collecting these reports for over 10 years.

Name Age M.S.W.
Address
Date of operation Present date Operator
Patient written to: seen by

HEALTH SINCE OPERATION.

Have you had any pain since operation? Have you any now?
If so, when?
Where?
How severe?
More or less than before operation?
Do you have your monthly courses? Are they regular?
What is the quantity?
If they have ceased, since when is it?
Do you have any discharge? Is it much?
Is it white, yellow, green, blood-stained, bad-smelling?
What is your present general state of health?
Do you feel generally better or worse than before operation?
Can you do your ordinary duties?
Are you usually cheerful, irritable, or depressed?
Do you suffer from headaches?
Is your memory any different since operation?
Do you suffer from flushes, heats, giddiness or faintness?
Or did you do so after operation, and for how long?
Do you have any difficulty with the bladder or bowels?
Have you had any children since operation?
Have marital relations been the same as before operation?
If altered, in any way?
Have you had any trouble with the scar?
Did you have any stitch abscesses?

PRESENT CONDITION.

| | | |
|---|---|---|
| Vulva | Vagina | Uterus |
| Ovaries | Tubes | Broad ligaments |
| Scar | Recurrence | |
| General condition | | |

OPERATION NOTES.

| | | |
|---|---|---|
| Drainage | Irrigation | Suture of wound |
| Uterus | Ovaries | |
| Remarks | | |

I propose to consider the after-results in the following sections:

1. The after-results of the removal of the appendages of one side. Based on the divisions A, B, C, R, U.
2. The after-results of the removal of both appendages. Divisions D, E, F, G, M, N, O, and P.
3. The after-results of hysterectomy for fibroids and fibrosis. Divisions H, I, K, L and N.
4. The after-results of hysterectomy for uterine carcinoma. Divisions J and P.
5. The after-results of conservative myomectomy. Divisions Q, R and S.
6. The after-results of operations for displacements. Divisions S, T and U.
7. The after-results of abdominal operations in general.

It will be observed that a few of the divisions have to be considered twice; for example, division N comes into the second section in view of the removal of both the appendages, and into the third as being a group of hysterectomies for fibroids. Division P comes similarly into sections 2 and 4; division R into sections 1 and 5; division S into sections 5 and 6 and division U into sections 1 and 6.

## Section I.

### The After-results of Operations for the Removal of the Appendages of One Side.

These observations are based on divisions A, B, C, R and U. I have added the cases in R and U to the tables of A, B, C, according to the nature of the disease for which the appendages were removed, so that the material at our disposal is as follows:—

| Unilateral salpingo-oöphorectomy | No. of cases. | Primary mortality. | Cases traced. |
|---|---|---|---|
| A. For tumour ..... | 157 | 4 | 128 |
| B. For inflammatory disease ... | 73 | 3 | 54 |
| C. For extra-uterine pregnancy | 54 | 3 | 39 |
| Total | 284 | 10 | 221 |

Percentage of cases traced: 80·6.

The following questions offer themselves for solution:—

1. How is the general health affected?
2. How far are the symptoms relieved?
3. Has the operation any influence on "sex-character"?

4. What are the chances of disease developing later in the organs that are left and requiring a second operation?
5. What is the value of the remaining ovary with reference to subsequent pregnancy?

*1. How is the General Health Affected?*

To this question we may reply without hesitation that, speaking generally, the operation has no detrimental effect upon the general health; in fact, in the great majority of cases, as may be seen from the tables, patients have expressed themselves as being in very good health, and much better since the operation. Clearly, we cannot expect that an abdominal operation will either cure, or confer immunity from, illness arising from the heart, lungs, excretory and digestive systems; and some of the patients have suffered in their general health from such causes. The relation between operations and the nervous system is a closer one; and we might expect that any detrimental results of the operation would show themselves in this direction. While this is so in a few cases, we find that many patients on the contrary have been not only not worse but even decidedly better as regards their nervous system, after the operation. The reason for this is not far to seek. It is certain that pelvic disease in women often leads to general impairment of the health, chronic invalidism, loss of energy and of the power of endurance, and frequent or constant pain; and it is equally certain that from time to time such patients have been labelled as neurotics and hysterical women, and charged with imagining their ailments and even with malingering; merely because they perhaps have not looked ill, and at times have felt comparatively well and have been able to rouse themselves and lead an ordinary life for a while.

For the sake of our reputation, and in common justice to those unfortunate women who are never well and yet are expected never to complain, it should be a fundamental axiom that no woman should be called neurotic until it has been ascertained that her pelvic organs are healthy. Indeed we might go further, and say that a woman should not be called neurotic until it has been shown that she has no organic disease anywhere.

Passing on now to the consideration of the question statistically, we find that we have 221 cases available for investigation. Seven patients, all in division A, died later: three of these were cases of ovarian carcinoma or adenocarcinoma.

A. 13. The tumour, a left ovarian cystic adenoma, was thought at the time of the operation to be malignant. Eleven months after, intestinal obstruction occurred, due to extensive growth in the pelvis.

Inguinal colotomy was performed: the patient died a few months later.

A. 22. The tumour, a left ovarian cystic adenoma invading the posterior wall of the uterus, was thought, as in the preceding case, to be malignant at the time of the operation: the patient died of extension of the growth 5 months later.

A. 78. The tumour was a large left ovarian cyst, partly ruptured; there was peritonitis, with dense adhesions. Sixteen months later I saw the patient, who stated that her general health was good, but that she felt very weak. On examination a tense cystic swelling was felt behind and to the right of the uterus. The patient died of extension of the growth 4 months later.

Two patients died of intestinal obstruction:—

A. 10. The obstruction came on 6 weeks after the operation, when the patient had been up and about in apparently good health for several weeks. Some coils of small intestine were found dipping into the pelvis, to the floor of which they were adherent: they were released and the obstruction apparently overcome; but the patient did not rally.

A. 44. The case was one of a large parovarian cyst, burrowing deeply between the vagina and the rectum. Symptoms of obstruction came on 5 months later, when the patient was away from home; her own doctor was not in attendance and she died.

The last two deaths were from unusual causes:—

A. 38. The patient developed Bright's disease and died of uræmia about a year after the operation.

A. 52. The patient, a single lady of 60, became acutely melancholic eleven months after the operation, and committed suicide by throwing herself out of the window.

As to the remaining 214 patients, their general health was as follows:—

One hundred and forty patients reported that they were in very good health, and much better than they were before the operation.

Forty stated that their health was only moderate, but better than it was before the operation.

Sixteen reported that their health was poor or bad, and either worse, or at least no better, than before the operation.

Eighteen had kept well for a time and had ill-health lately; in 13 of these this was due to local conditions necessitating further operation; and in 5 the ill-health was due to general conditions.

We may consider these groups in greater detail. I have recorded

as far as possible the patients' own descriptions of the state of their health. Thus, in the group of those who were in very good health, there were such descriptions as "wonderfully well: a different woman"; "very good, I never suffer anything"; "I have felt much better than I have done since I was married"; "ever so much better since the operation than for years before"; "I can get about much better"; "very good: much better than before as I am free from pain"; "better, happier and brighter"; "very good indeed, I don't think I ever felt better"; "splendid: much better: I can walk and do anything." I quote these expressions, not as though I were collecting testimonials for a patent medicine, but to give an idea how the patients themselves regarded their health.

In the second group, those whose health was poor, but who felt better than before the operation, the causes of ill-health were as follows:—

*Weakness* in 15 cases; some complained that they were easily tired; one said that she felt weak after the periods (she suffered from menorrhagia).

*Indigestion.* Six cases.

*Bronchitis* or bad cold or shortness of breath in 4 cases.

"*Nerves*," neuralgia, headaches or worry in 8 cases: some poor women were worried because their husbands were out of work, and one had lost her little child two months previously.

*Varicose veins*, 1 case. *Epileptic fits*, 1 case.

Cause not specified, 5 cases. Total 40 cases.

In the third group, where the patients felt worse or no better, the following causes were operative:—

*Weakness* in 7 cases.

*Depression or neurasthenia* in 3 cases.

*Rheumatic arthritis, indigestion, bad chest, weak heart, anorexia*, 1 case of each.

Not specified, 1 case. Total 16 cases.

In the last group, of those who had suffered ill-health lately, the causes of general ill-health in 5 cases were heart disease, climacteric melancholia, weakness, a poisoned hand, and weakness following confinement.

The cases where ill-health was due to local conditions necessitating further operations need not be considered in detail here, as they will be discussed under the heading, "What are the chances of disease developing later in the organs that are left?"

If we consider this question of the general health in relation to

the 3 divisions under discussion, we can state the results in the following table. The figures in italics are percentages.

| Division. | A. | | B. | | C | | Total. | |
|---|---|---|---|---|---|---|---|---|
| Very good ..... | 76 | *62·8* | 38 | *70·4* | 26 | *66·6* | 140 | *65·4* |
| Moderate: Better | 23 | *19·* | 12 | *22·2* | 5 | *12·8* | 40 | *18·7* |
| Poor: Not better | 9 | *7·4* | 2 | *3·7* | 5 | *12·8* | 16 | *7·5* |
| Ill-health lately general | 4 | *3·4* | | | 1 | *2·6* | 5 | *2·3* |
| Ill-health lately local | 9 | *7·4* | 2 | *3·7* | 2 | *5·2* | 13 | *6·1* |
| Total | 121 | *100·0* | 54 | *100·0* | 39 | *100·0* | 214 | *100·0* |

It will be observed that the percentage of cases of each kind is very similar in the 3 divisions.

If we eliminate the 13 cases where the later history was complicated by the development of further pelvic disease, we arrive at our final figures, as to the condition of the general health after these operations, namely, that of 201 cases, 180 or about 90 per cent. had very good health or at least were better than they were before the operation; whilst 21 or about 10 per cent. were either worse or at least not better. In the latter group it is evident that some of the patients suffered from conditions for which the operation could not be held responsible: thus we can eliminate all the 5 cases in which the health had suffered lately, and also the 5 cases of rheumatic arthritis, indigestion, bad chest, weak heart, and anorexia. The cases of weakness, depression, or neurasthenia were 10 in number, and in these it would be proper to say that the operation could be held responsible. This conclusion bears out my earlier statement that we might expect any detrimental effects of the operation to show themselves in relation to the nervous system. In this respect I am persuaded that a great deal depends upon medical guidance. If patients are encouraged to consider themselves invalids, a number of them will remain invalids for a year after the operation or for even longer periods; if they are led to understand that they are expected to be no longer invalids after the first 3 months, we shall find them forgetting their illness and going about their ordinary avocations at the end of that time. With a few of them operation causes a kind of mental shock, which is not quickly shaken off; but even with these a great deal depends on treatment.

In conclusion, inasmuch as we find that in 90 per cent. of cases patients are in quite good health or at least better than before

operation, and that in another 5 per cent. of cases the ill-health that is present cannot be attributed to the operation, I consider that I have demonstrated the truth of the statement with which I began this section, namely, " that, speaking generally, the operation has no detrimental effects on the general health." It must be borne in mind that the operations under consideration are operations, not of election, but of necessity; they would still be necessary even if it were shown that in most cases their effect on the general health were detrimental. It is a matter, therefore, of considerable satisfaction to know that this is not so, and that while we are curing the diseased local condition we are, in the great majority of cases, also improving the patient's general health.

*2 How Far are Symptoms Relieved?*

Insofar as the conditions under consideration affect the general health, we have already given a reply to this question; of local symptoms, the one that is of principal importance is pain. I have therefore analysed my reports with special reference to the question of pain, with the following results:—

Particulars are given in 204 cases. As before, the figures can be given in tabular form, recording the results in each of the 3 divisions.

| | A. | | B. | | C. | | Total. | |
|---|---|---|---|---|---|---|---|---|
| No pain since operation | 70 | *61·0* | 29 | *52·7* | 28 | *82·3* | 127 | *62·3* |
| Some pain; less than before | 30 | *26·0* | 18 | *32·7* | 2 | *5·9* | 50 | *24·5* |
| Pain, worse or not better | 9 | *7·8* | 5 | *9·1* | 2 | *5·9* | 16 | *7·8* |
| Pain lately ..... | 6 | *5·2* | 3 | *5·5* | 2 | *5·9* | 11 | *5·4* |
| Total | 115 | *100·0* | 55 | *100·0* | 34 | *100·0* | 204 | *100·0* |

It is interesting to notice that there were fewer cases of total absence of pain in division B, where operations were undertaken for inflammatory conditions, the effects of which would, presumably, take some time to clear up. These cases, further, are those in which there would be most pain before the operation, and we accordingly find a large proportion of patients who stated that such pain as they still had was much less than before operation. On the other hand there were most cases of total absence of pain in division C, where operation was undertaken for an acute condition, tubal pregnancy, the effects of which would presumably clear up quickly after operation. And, as these patients usually have little or no pain up

to the time of the acute attack, we find that the proportion of cases of " some pain, less than before " is very small. The cases in which pain had occurred lately should properly be counted among those where pain was relieved, as they were free from pain for some time, and the recent pain was of different origin to that present before the operation. If we read the figures according to this view, we find that the cases that were relieved of pain amounted to 92·2 per cent. of the whole, a proportion sufficiently high to be regarded as satisfactory.

With regard to other symptoms there were certain cases where there was relief directly attributable to the operation; in other cases improvement was noted in directions where one would not specially look for it. Of direct results the following may be mentioned. In 14 cases patients stated that they had suffered from dyspareunia which had disappeared completely after the operation. As prolapsed and inflamed appendages are an important cause of dyspareunia, the improvement is readily understood.

Improvement in menstrual disturbances took place in some instances; 11 patients suffered less from menorrhagia and 6 from dysmenorrhœa after the operation.

Seven patients suffered less from leucorrhœa, and one stated that she had been relieved of bladder trouble in the form of too frequent micturition.

Among indirect results we may include relief from headaches in 6 cases and from constipation in 10.

*3. Has the Operation any Influence on " Sex-character ?"*

The removal of both ovaries is known to exert a certain influence on the incidence of menstruation and on the sexual instincts; in a later paper I shall discuss the extent of this influence.

The removal of one ovary is not commonly supposed to have either of these effects, and therefore it is interesting to find that there were cases in which such an influence was apparently exerted.

A. 9. Patient was 35 at the time of the operation; at the age of 41 menstruation began to be irregular with intervals of several months.

A. 42. Patient was 33 at the time of the operation; a year later she had amenorrhœa for 4 months: there was no pregnancy nor was there any constitutional condition that would account for it.

A. 63. The patient was 34 at the time of the operation: for four months afterwards there was amenorrhœa; then a further period

extending over 8 months, and no period after. Flushes followed the last period.

A. 84. The patient was 42 when operated upon and was seen a year later; she had then had 6 months amenorrhœa and suffered from flushes occasionally.

A. 87. Patient was 38 at the time of the operation: 7 months later she stated that she had been irregular lately.

B. 18. Patient was 44 when operated upon: she had amenorrhœa for 7 months after, and then menstruation returned and continued regularly.

C. 5. Patient was 32 at the time of the operation and was seen 6 years later: during all this time she had had amenorrhœa except for a show a year and again 2 years after operation; flushings began a few months after the operation.

C. 16. Patient was 32 when operated upon and was seen 4 years later: she had had several periods of amenorrhœa lasting about a year at a time.

Diminution in sexual desire or feeling was stated to have occurred in 6 cases.

A. 1. The patient was 43 when operated upon: desire less.

A. 17. Age at operation 32: desire and feeling were both diminished after the operation; but later she became pregnant and was duly confined.

A. 19. Age at operation 28: desire less; she also became pregnant later and miscarried.

A. 42. This case has been mentioned above: during the period of amenorrhœa she felt "sexless"; she was given ovarian tabloids, and a few weeks later she wrote to say that menstruation had returned and that she had last the "sexlessness." It is interesting to notice that this was the only case in which menstrual disturbance coincided with diminished sex-instinct.

A. 101. Age at operation 27: feeling and desire have been less since the operation and there has been dyspareunia.

C. 6. Age at operation 29: desire has been less since the operation.

It may be said that it is not surprising if in certain cases the sex-instinct becomes less in the course of time. This may be admitted, although 5 of the 6 cases were under the age of 35. But if this explanation were accepted, would it not be equally applicable to cases where both ovaries had been removed?

On the other hand there were 6 cases where sex desire or feeling

had been increased since the operation; this is more easily understood, particularly in cases where dyspareunia was relieved.

We may conclude this section of our enquiry by saying that in a small proportion of cases the removal of the appendages of one size has the effect of disturbing the function of menstruation and of diminishing the sex-instinct.

*4. What are the Chances of Disease Developing Later in the Organs that are Left and Necessitating a Second Operation?*

We may consider this under three heads: (1) recurrence on the opposite side of a condition similar to that for which operation was undertaken; (2) occurrence of some other disease; (3) cases with disease on the other side, where the patients are still under observation.

1. *Recurrence of Similar Condition on the Opposite Side.* These are summarized as follows:—

(*a*) Five cases of development of ovarian or broad ligament cyst on the opposite side.

(*b*) Three cases of recurrence of malignant growths in the pelvis and abdomen; all these three died.

(*c*) One case of development of inflammatory disease on the other side.

(*d*) Five cases of extra-uterine pregnancy, repeated on the other side.

2. *Occurrence of a Different Disease.*

One case of ovarian cyst (previously tubal pregnancy).

Two cases of inflammatory disease of the appendages (previously ovarian cyst).

Three cases of extra-uterine pregnancy (previously ovarian cyst or inflammatory disease).

One case of uterine fibroid (previously tubal pregnancy).

One case of chronic retroversion (previously tubal pregnancy).

One case in which "another operation" was performed, the nature of which was not ascertained.

3. There are 5 cases where there is some enlargement of the appendages of the other side. These have all been seen only recently and are still under observation; consequently the exact nature of the condition has not been verified by a second operation.

This makes 28 cases, of which 3 died without further operation: of the remaining 25, 20 have undergone a second operation. I shall give a brief summary of these cases.

*1. Recurrence of a Similar Condition on the Other Side—14 cases.*

A. 2. Right multilocular ovarian cyst. Six years later operation was required for a small ovarian cyst on the right side.

A. 4. Right multilocular ovarian cyst. Left broad ligament cyst removed sixteen months later. In the interval I had to remove the left kidney for pyonephrosis due to a calculus.

A. 6. Right ovarian cyst in the broad ligament. Left ovarian cyst removed 6 months later.

A. 16. Left cystic and sclerotic ovary: some cysts in the right ovary were punctured. A year later the right ovary had become a cyst and had to be removed.

A. 37. Large right ovarian cyst, weighing 15½ lbs. Two years later the left appendages were removed for hydrosalpinx and broad ligament cyst.

A. 13; A. 22; A. 78. These cases have been noticed above, when speaking of the cases that died some time after operation.

B. 1. Left salpingo-oöphoritis. The right appendages developed a similar condition and were removed 20 months later.

C. 11. Left tubal pregnancy with intra-peritoneal rupture and free hæmorrhage. Four years later right tubal pregnancy with the same serious complication.

C. 16. Left tubal pregnancy. Four years and 2 months later pregnancy occurred in the right tube, with intra-peritoneal rupture and para-tubal hæmatocele.

C. 17. Right tubal pregnancy. Four years and two months later operation for left tubal pregnancy, with rupture of the tube and intra-peritoneal hæmorrhage.

C. 19. Left tubal pregnancy with rupture and severe intra-peritoneal hæmorrhage: the patient was brought to the Hospital in a collapsed condition, and within 35 minutes of her coming to the out-patient department she had been operated upon. Two and a half years later she developed a right tubal pregnancy, which was diagnosed by herself and her husband, and she was operated upon soon after the first symptoms of rupture.

C. 30. Left tubal pregnancy, with rupture and slight intra-peritoneal hæmorrhage. Exactly a year later patient was operated upon for a similar condition on the right side.

*2. Occurrence of a Different Condition to that Necessitating the First Operation—9 cases.*

C. 2. Left tubal pregnancy with rupture and severe intra-peritoneal hæmorrhage. Three and three-quarter years later patient

was operated upon for broad ligament cysts on the right side involving the tube and ovary.

A. 104. Right ovarian cyst with adherent retroversion; a year later the left appendages were removed for salpingo-oöphoritis.

A. 121. Chronic retroversion with cystic left ovary. Nine months later patient developed right salpingo-oöphoritis with adhesions; the tube was removed with half the ovary.

A. 85. The patient presented symptoms of extra-uterine pregnancy; at the operation some free blood was found in the peritoneal cavity: it came from the right ovary; microscopically no villi were discovered and the condition was pronounced to be one of lutein hæmatoma. Seven months later similar symptoms occurred, referred to the left side: again the hæmorrhage was from the ovary, in which chorionic villi were discovered.

B. 2. The right appendages were removed for pyosalpinx with suppurating ovarian cyst. Four and a half years later the patient was operated upon for left tubal pregnancy.

A. 119. Chronic retroversion with small right ovarian cyst. Two and a quarter years later left tubal pregnancy occurred, with rupture and free intra-peritoneal hæmorrhage.

C. 8. Left tubal pregnancy with intra-peritoneal rupture. Three and a half years later the patient developed a large degenerating subperitoneal fibroid which was removed by conservative myomectomy.

C. 1. Left tubal pregnancy. A year and a half later hysteropexy was performed for an intractable retroversion.

C. 13. Left tubal pregnancy. Nine months later the patient was taken ill, and required to have "another operation," the nature of which I was unable to ascertain. This was the only case in which the second operation was not performed by myself.

*3. Cases in which some Enlargement of the Appendages of the other Side has occurred; but the patients have not undergone a second operation.*

A. 124. Operation for left ovarian hæmorrhagic cyst with retroversion, on February 4, 1909. On December 8, 1909, a cystic swelling was found on the right side.

A. 125. Operation for retroversion and cystic left ovary and varix of the left broad ligament. On December 17, 1909, a swelling the size of an orange was found, apparently affecting the right ovary.

B. 29. Right appendages removed for pyosalpinx and oöphoritis, left tube removed for salpingitis on July 15, 1909. On December 13, 1909, a swelling was found on the left side, apparently a small ovarian cyst.

B. 47. Both tubes and the left ovary removed for double salpingitis and an ovarian cyst in the left broad ligament, on March 16, 1908. On October 6, 1909, a right ovarian cyst the size of a fist was found.

B. 52. Left appendages removed for salpingitis and suppurating ovarian cyst on March 11, 1909. On December 17, 1909, the right ovary was found enlarged to the size of an orange.

1. We find then that the proportion of cases in which a second operation was required for return of a similar condition on the opposite side was as follows:—

Division A—Ovariotomy for tumours—5 cases out of 128 or 3·9 per cent.

Division B—Inflammatory conditions—1 case out of 54 or 1·8 per cent.

Division C—Extra-uterine pregnancy—5 cases out of 39 or 12·8 per cent.

One does not usually regard extra-uterine pregnancy as a condition that is very prone to be repeated on the other side; and to find that this occurred in 13 per cent. of my cases came as a great surprise to me. It would be very interesting to know the experience of other operators in this matter.

2. The proportion of cases in which a second operation was required for a condition different to that present at the first operation was:—

Division A—3 cases out of 128 or 2·3 per cent.
Division B—1 case out of 54 or 1·8 per cent.
Division C—4 cases out of 39 or 10·2 per cent.

Again division C has a marked preponderance; but this must be looked on as accidental, as the later conditions appear to have had nothing to do with the previous extra-uterine pregnancy.

3. If we include the cases still under observation we find that in four of them there was an ovarian cyst with or without inflamed tubes removed at the time of operation, and a cyst had apparently developed later on the other side.

Eliminating the cases in which the second operation was for condition unconnected with the appendages, as well as the 4 cases in

which death occurred from other than pelvic causes, we can present the final figures recording the chances of disease in the remaining ovary and tube as follows:—

After ovariotomy: the remaining appendages affected in 14 cases out of 124 or 11·3 per cent.
After removal of inflamed appendages: the remaining appendages affected in 5 cases out of 54 or 9·2 per cent.
After operation for extra-uterine pregnancy: the remaining appendages affected in 6 cases out of 39 or 15·4 per cent.
Total: 25 cases out of 217 or 11·0 per cent.

With regard to the recurrence of growth in a malignant form it is to be noted that there were 3 cases that were thought at the time of operation to be malignant: two of these died of a return of the growth; the third case is too recent for any definite conclusion to be drawn, as the operation took place in June, 1909. But there was no sign of growth when she was seen 6 months later.

The third case, where a fatal recurrence took place, was not thought to be malignant at the time; but the tumour had partly ruptured. The case supports the attitude of those who make a point of removing ovarian cysts entire, without tapping, whatever their size. This has been my own practice for about 15 years: the list includes a fair number of cases where the tumour weighed over 10 lbs; I have records of the weight in 13 cases, as follows: 10, 10, 10½, 11½, 14, 14, 15, 15, 15½, 18, 18, 30, 31 lbs. respectively. These were all removed entire.

In conclusion we may say that, apart from cases of malignant tumours, the chances of the development of tumour or inflammatory disease in the remaining ovary and tube are relatively slight; such recurrence taking place in about 10 per cent. of cases. Consequently, in view of the definite value of the remaining tube and ovary, they are always worth retaining when they appear to be healthy.

Moreover, in cases where both tubes are diseased, it is worth while saving one ovary when this is possible; because though child-bearing is not possible, the patient menstruates and retains the systemic influence of the ovary. I adopted this course more particularly in some of my later cases, when I was more impressed with its advisability than I was earlier. It will be seen that in division B one ovary was preserved though both tubes had to be sacrificed in cases 6, 15, 16, 20, 25, 26, 27, 28, 29, 36, 38, 41, 42, 45, 47. Formerly I should have removed both ovaries as well as tubes in some of these

cases, and they would consequently have come into division E. In cases B 21, 46, and 50, I went a step further and did a conservative salpingostomy on one side on the chance of pregnancy occurring, but it has not done so in any of the three cases.

When the appendages of one side are removed for extra-uterine pregnancy, the chances of a recurrence of this condition appear to be rather high, as such recurrence occurred in 13·5 per cent. of the cases; but even with this risk it is worth while leaving the healthy appendages, as they prove to be serviceable for future normal pregnancy in a fair proportion of cases, as we shall see in the next section.

*5. What is the Value of the Remaining Ovary from the Point of View of Subsequent Pregnancy?*

In order to estimate this point properly the cases require a little analysis, as we must eliminate patients who were beyond the child-bearing age, and also single women and widows.

In the following table are given the numbers of cases in each division where the age was 50 or more, whilst the remainder are divided into cases of single women, widows, patients aged under 30, patients of 30—39 and patients of 40—49. Widows over 50 are included in the 50 group.

| | 50 or over | Single | Widows | 15–29 | 30–39 | 40–49 | Total. |
|---|---|---|---|---|---|---|---|
| A. | 22 | 22 | 3 | 24 | 35 | 22 | 128 |
| B. | 0 | 5 | 2 | 19 | 21 | 7 | 54 |
| C. | 0 | 0 | 0 | 15 | 23 | 1 | 39 |
| Total | 22 | 27 | 5 | 58 | 79 | 30 | 221 |

The distribution of the cases in the different divisions is not without interest. Thus ovarian tumours (Division A) are found at all ages and in all conditions: inflammatory diseases are found both in single and married, but especially among the latter, and the age incidence is the child-bearing period. Extra-uterine pregnancy (Division C) necessarily occurs during the child-bearing period; and although a few of the cases of this condition occurred in unmarried women I have not included them among "single women" as they were physiologically married.

For the purpose of our present enquiry we can exclude the patients over 50, the spinsters and the widows, 54 in all, and virtually we may also exclude 30 patients over 40, although 2 of these became pregnant: one miscarried and one had a tubal preg-

nancy. We have then 137 cases of married women under 40. We must, however, further exclude 12 cases in division B, in which both tubes had to be removed, preserving one ovary: 7 of these were under 30 and 5 under 40. This leaves 125 patients who were theoretically able to become pregnant, and of these 4 were pregnant at the time of operation, and completed their pregnancy, the child being born at the full time, and 33 or just 25 per cent. became pregnant subsequently. Of these 33, 19 had full time deliveries, 5 had miscarriages, 7 had extra-uterine pregnancy, and two were pregnant at the time they were interviewed, the pregnancies being respectively $2\frac{1}{2}$ and 5 months.

The pregnancies in the different divisions were distributed as follows, cases of married women under 40 being still alone under discussion.

| | | | | | | |
|---|---|---|---|---|---|---|
| Division A. | 59 | cases, | 14 | pregnant afterwards | = 24 | per cent. |
| ,, B. | 28 | ,, | 6 | ,, ,, | = 21 | ,, ,, |
| ,, C. | 38 | ,, | 13 | ,, ,, | = 34 | ,, ,, |
| Total | 125 | ,, | 33 | ,, ,, | = 26 | ,, ,, |

This shows, contrary to what one might have expected, that after removal of the appendages of one side for inflammatory disease, the chances of pregnancy are not appreciably less than after the operation has been done for ovarian tumours.

It is clear that the chances of pregnancy after the removal of the appendages of one side, amounting to 26 per cent., are sufficiently good to warrant the preservation of the opposite tube and ovary in all cases in which they are not grossly affected.

It is very surprising that among later pregnancies there should be such a high proportion of extra-uterine cases, amounting in all to 8 out of 33 or 24 per cent. I have not come across any previous figures of corresponding results, and therefore cannot say whether this coincides with the experience of other operators or whether it is a peculiarity of my own cases. It is difficult to find a satisfactory explanation, but it would appear that we are warranted in making the inference that women who have had something wrong with the ovary and tube of one side are more likely to develope extra-uterine pregnancy afterwards than is the case with women who have had no disease of their appendages.

Another point of some interest may be referred to here. In 1900 Dr. Rumley Dawson read a paper* before the Obstetrical Society of London in which he revived an old theory that the right ovary

* *Lond. Obstet. Trans.*, vol. xlii, for 1900, p. 356.

produced boys and the left ovary produced girls. On the face of it such a theory appears too artificial to command acceptance; and my cases supply data that definitely refute it.

I have said that 19 patients had full-time deliveries after the operation, and some of them had more than one; further, four patients who were pregnant at the time of the operation went to full-time, and we may include these cases in our consideration, because it is a reasonable supposition that in a patient who has an ovarian tumour and becomes pregnant the ovum is derived from the sound ovary, not from the one with the tumour.

The list of the 29 children that were born, with their sex, is as follows:—

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A. | 3 | Left | side | removed. | Active | ovary, | Right: 1 boy and 2 girls. |
| | 11 | Left | ,, | ,, | ,, | ,, | Right: 1 girl. |
| | 17 | Right | ,, | ,, | ,, | ,, | Left: 1 boy. |
| | 54 | Right | ,, | ,, | ,, | ,, | Left: 1 girl. |
| | 68 | Right | ,, | ,, | ,, | ,, | Left: 1 girl. |
| | 76 | Right | ,, | ,, | ,, | ,, | Left: 1 boy. |
| | 79 | Right | ,, | ,, | ,, | ,, | Left: 1 boy. |
| | 91 | Right | ,, | ,, | ,, | ,, | Left: 1 boy. |
| | 98 | Right | ,, | ,, | ,, | ,, | Left: 1 girl. |
| | 102 | Left | ,, | ,, | ,, | ,, | Right: 1 girl. |
| | 106 | Right | ,, | ,, | ,, | ,, | Left: 2 boys. |
| | 112 | Left | ,, | ,, | ,, | ,, | Right: 1 boy. |
| B. | 11 | Left | ,, | ,, | ,, | ,, | Right: 1 (? sex). |
| | 17 | Right | ,, | ,, | ,, | ,, | Left: 1 boy. |
| | 30 | Left | ,, | ,, | ,, | ,, | Right: 2 boys. |
| | 40 | Left | ,, | ,, | ,, | ,, | Right: 2 boys. |
| C. | 8 | Left | ,, | ,, | ,, | ,, | Right: 1 boy and 1 girl. |
| | 12 | Left | ,, | ,, | ,, | ,, | Right: 1 girl. |
| | 20 | Right | ,, | ,, | ,, | ,, | Left: 1 girl. |
| | 21 | Left | ,, | ,, | ,, | ,, | Right: 1 girl. |
| | 22 | Right | ,, | ,, | ,, | ,, | Left: 1 (? sex). |
| | 26 | Right | ,, | ,, | ,, | ,, | Left: 1 girl. |
| | 29 | Right | ,, | ,, | ,, | ,, | Left: 1 boy. |

To these cases I may add one from the series to be next considered (Division D); Mr. Bland-Sutton removed a left ovarian cyst in May, 1898, and in 1904 I removed a right tubo-ovarian cyst. In the interval between the two operations the patient had two children, one boy and one girl, produced from the right ovary.

Thus the remaining or active right ovary produced 5 boys and 4 girls. The remaining or active left ovary produced 8 boys and 5

girls. In one case the remaining right ovary produced 1 boy and 2 girls. In one case the remaining left ovary produced 1 boy and 1 girl. In one case the remaining right ovary produced 1 boy and 1 girl. In two cases the sex of the child was not stated.

Although the number of cases is not very large, they show conclusively as far as they go, that Dr. Rumley Dawson's theory is untenable, and that there is no kind of relation between the side from which the ovum is derived and the sex of the resulting embryo.

### Summary of Conclusions.

1. Speaking generally, operations for the removal of the appendages of one side have no detrimental effect on the general health, the cases where ill-health could be traced to the operation numbering not more than 5 per cent. About 90 per cent. of cases were actually better after the operation than they were before.

2. The relief of symptoms is well marked after these operations; about 87 per cent. of patients were free from pain afterwards or experienced less pain than before the operation, whilst a further 5 per cent. were free from pain for a time and developed pain later from other causes. Dyspareunia, dysmenorrhœa, menorrhagia and leucorrhœa were relieved in a number of cases.

3. The removal of the appendages of one side was followed by irregularity, diminution or cessation of menstruation in a small number of cases (8); and in 6 cases there followed a diminution of the sex-instinct.

4. The chances of the disease developing in the remaining ovary and tube are not very great: such a recurrence took place in about 10 per cent. of cases. Consequently, in view of the definite value of the remaining ovary and tube it is always worth while preserving them when they appear to be healthy. Soiling of the peritoneal cavity with the contents of an ovarian cyst favours the occurrence of later disease and therefore the interests of the patients are safeguarded by the removal of these cysts (however large) intact, without tapping.

5. The remaining tube and ovary have a considerable value from the point of view of subsequent pregnancy; 33 patients or 25 per cent. of the married women under 40 became pregnant. Of these, 19 had full-time deliveries (some repeated), 5 had miscarriages, and 7 had extra-uterine pregnancy, whilst 2 were pregnant when seen. It would appear that after the removal of appendages of one side there

is a greater liability to the occurrence of extra-uterine pregnancy than is the case with normal women.

The 19 women who had full-time pregnancies bore, between them, 25 children; and four more children were born at full-time when ovariotomy was undertaken during pregnancy.

A study of the sex of these children in relation to the side on which the remaining or active ovary was situated definitely refutes the theory that the right ovaries produce boys and left ovaries produce girls; it shows clearly that there is no relation between the side from which the ovum is derived and the sex of the child.

## TABLE A.

### Unilateral Salpingo-oöphorectomy for Tumours.

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound. |
|---|---|---|---|---|---|---|
| 1 | P. R. 43 M | 1896 Mar. 30 | C. H. W. | — | Right ovarian dermoid, twisted pedicle | — |
| 2 | J. F. 32 M | Sept. 14 | Do. | — | Right multilocular ovarian cyst | S. A. |
| 3 | L. I. 28 M | 1898 Aug. 29 | Do. | — | Left ovarian cyst, pregnancy 4 months | — |
| 4 | A. W. 32 M | Nov. 14 | Do. | — | Left ovarian cyst | — |
| 5 | R. A. 36 M | Dec. 5 | Do. | — | Right ovarian cyst | — |
| 6 | C. B. 29 M | 1900 Oct. 2 | P. W. H. | — | Right ovarian cyst in broad ligament. Old pelvic peritonitis and appendicitis. Appendix and ovarian cyst removed | — |
| 7 | A. P. 27 M | Dec. 19 | Do. | — | Left ovarian cyst | — |
| 8 | S. G. 48 M | 1901 Sept. 16 | C. H. W. | Dr. Coleman Dr. C. J. Woollett | Large right ovarian cyst | S. S. |
| 9 | J. H. 35 W | Sept. 24 | P. | Dr. A. G. Everard | Left parovarian cyst | S. S. |
| 10 | A. W. 58 W | 1902 Jan. 6 | P. | Dr. Gordon Hull | Large left ovarian cystic adenoma | — |
| 11 | E. H. 30 M | Feb. 6 | P. W. H. | Dr. J. E. Beggs | Left ovaria cyst | S. S. |
| 12 | C. M. 53 W | April 17 | P. | Dr. A. A. Napper | Left ovarian cyst | — |
| 13 | M. P. 52 M | Sept. 4 | P. W. H. | Dr. P. R. Dodwell | Left ovarian cystic adenoma, ?malignant. Distal half of vermiform appendix incorporated in the tumour | — |
| 14 | K. R. 44 M | Sept. 15 | C. H. W. | Dr. J. Cater | Left broad ligament cyst | — |

ABBREVIATIONS—C. H. W., Chelsea Hospital for Women; P. W. H., Prince of Wales's Hospital, Tottenham; P., Private; S. A., Stitch Abscess; S. S., Skin Stretched; H., Hernia.

| Wound. | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | "Wonderfully well, a different woman." No pain | Uterus and left ovary normal | Menopause in October, 1901. Sex feeling rather diminished | Dec. 20. 1901 |
| S. A. | Good till lately | Cystic swelling to the left of the uterus | Left ovariotomy, October, 1902 | Sept., 1902 |
| — | "Fairly good; better than before operation" | Not seen | Pregnancy undisturbed; confinement Jan. 27, 1899. Three children since the operation, 2 boys and 1 girl; eldest 3 years old | Mar. 29, 1907 |
| — | Good till lately | Cystic swelling to right of the uterus | Right ovariotomy, Mar. 12, 1900. Left nephrectomy, March, 1899. | Feb., 1900 |
| — | Poor, owing to chronic bronchitis. "A great deal stronger than before operation" | Uterus and left ovary normal | — | Oct. 12, 1903 |
| — | Not very well; pain in left side | Tense cystic swelling to left of uterus | Left ovariotomy, April, 1901 | April, 1901 |
| — | "Rather weak last 6 months; better than before operation" | Uterus and right ovary normal | — | Nov. 15, 1906 |
| S. S. | Felt better for some years; thinks heart is affected now | Uterus and left ovary normal | Menopause nine months before operation; the tumour was at first mistaken for pregnancy | July 18, 1907 |
| S. S. | Was very well indeed till 2 years ago; since then climacteric melancholia; has been in asylum twice | Uterus and right ovary normal | Was married again 6 years ago; no children. Menstruation irregular for 2 years with intervals of several months, and climacteric symptoms | July 8, 1908 |
| — | Patient died of intestinal obstruction later | | | |
| S. S. | Good; better than before operation | Uterus and right ovary normal | Confinement of a girl, August 12, 1904 | Mar. 24, 1905 |
| — | "Much better" | Not seen | Menopause before operation | June 25. 1907 |
| — | Patient developed recurrence in the pelvis, causing intestinal obstruction; inguinal colotomy performed in August, 1903. The patient died some months later | | | |
| — | "Very fair; much better than before operation" | Uterus and right ovary normal | — | July 22, 1907 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound |
|---|---|---|---|---|---|---|
| 15 | E. B. 33 M | 1903 Jan. 3 | P. | Dr. G. Cohen | Left tubo-ovarian cyst. Solid mesenteric tumour (not removed) | — |
| 16 | E. D. 29 S | Jan. 15 | C. H. W. | — | Left cystic and sclerotic ovary (cysts in right ovary punctured) | — |
| 17 | M. M. 32 M | Jan. 15 | Do. | Dr. C. J. Harrison | Large right ovarian cyst. Small blood-cyst in left ovary resected | — |
| 18 | F. K. 27 S | Feb. 16 | Do. | Dr. A. Hope Walker | Left ovarian dermoid, with twisted pedicle | — |
| 19 | J. S. 28 M | Aug. 27 | Do. | — | Right ovarian dermoid. Cysts in left ovary punctured. | — |
| 20 | M. D. 49 S | 1904 Feb. 4 | P. | Dr. J. A. Maclaren | Right ovarian cyst, twisted pedicle | — |
| 21 | V. H. 23 S | Feb. 7 | P. | Dr. F. J. Tresilian | Left cystic ovary (varicose veins in left broad ligament) | — |
| 22 | M. E. 53 M | Feb. 8 | C. H. W. | Dr. Parker | Left ovarian cystic adenoma (? malignant) invading posterior wall of the uterus | — |
| 23 | M. B. 26 S | May 16 | Do. | Dr. G. Porter | Left ovarian cyst, closely adherent to the back of the left horn of a uterus bicornis | — |
| 24 | A. de F. 22 M | Sep. 10 | P. | — | Left ovarian dermoid. Right hydrosalpinx—tube removed | S. S. |
| 25 | E. H. 50 M | Sep. 12 | C. H. W. | — | Large right ovarian cyst | — |
| 26 | A. C. 33 M | Sep. 25 | P. | Dr. A. Atkinson | Left ovarian cyst | — |
| 27 | E. W. 28 M | Oct. 24 | C. H. W. | — | Right parovarian cyst (both ovaries and tubes left) | S. S. |

| Wound | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | "Very good; I never suffer anything" "Had dreadful pain before operation" | Uterus and right ovary normal; the mesenteric growth has apparently disappeared | — | Oct. 4, 1904 |
| — | Pain in right side | Small ovarian cyst right side | Right ovariotomy, Jan. 28, 1904 | Jan. 20, 1904 |
| — | "Feeling better than I have done since I was married" | Uterus and left ovary normal | A boy in August, 1904. Desire less since operation | June 26, 1905 |
| — | "Good; works hard." Better than before operation | Uterus normal; right ovary rather large and tender (Report by Dr. Walker) | — | June 28, 1907 |
| — | Rather weak and languid. Better than before operation; could not walk before | Uterus retroverted; left ovary normal | A miscarriage in 1904. Desire and feeling less since the operation | Aug. 24, 1905 |
| — | Very poor; depressed; worse than before operation | Not examined | — | July 2, 1907 |
| — | Has developed a pronounced neurasthenia verging on melancholia | Not seen | — | Mar. 16, 1908 |
| — | Patient died of extension of the growth, July 19, 1904 | | | |
| — | Was much better for a year and eight months; pain in left side last ten months | Uterus bicornis. Right ovary normal | Married 1½ year ago; no pregnancy | Oct. 10, 1905 |
| S. S. | "Good: slightly anæmic. Much better than before operation" | Uterus and right ovary normal | — | Apr. 1, 1909 |
| — | "Very good: much better than before operation" | Uterus and left ovary normal | — | Sep. 12, 1905 |
| — | "Very good: better than before operation" | Uterus and right ovary normal | A miscarriage at 4–5 months in March 1905 | Oct. 21, 1907 |
| S. S. | "Very good: much better than before operation" | Uterus and appendages normal | — | July 15, 1907 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound. |
|---|---|---|---|---|---|---|
| 28 | A. B. 24 S | 1905 Feb. 16 | P. W. H. | Dr. Angus Hunt | Left ovarian dermoid : double salpingitis with occlusion : right salpingostomy | S. S. |
| 29 | J. B. 25 M | Mar. 8 | P. | Dr. A. Grant | Large left ovarian cyst (18 lbs.) | 12″ long |
| 30 | F. C. 17 S | Mar. 23 | P. W. H. | Dr. G. P. Chappel | Large right ovarian cyst (15 lbs.) | 10½″ long |
| 31 | A. S. 29 M | May 11 | Do. | — | Left ovarian cyst | S. S. |
| 32 | L. C. 39 S | May 15 | C. H. W. | — | Left cystic and prolapsed ovary | — |
| 33 | M. S. 36 M | June 26 | Do. | Dr. Brownlow Martin | Right ovarian cyst | — |
| 34 | V. S. 33 S | July 13 | P. W. H. | Dr. Gurney Thompson. | Left cystic and prolapsed ovary | S. S. |
| 35 | E. L. 22 S | July 29 | P. | Dr. R. Bluett | Large right ovarian cyst (10 lbs.) | 9½″ long |
| 36 | E. G. 40 M | Aug. 19 | P. | Dr. Hall | Left cystic and adherent ovary. Cysts in right ovary punctured | S. S. |
| 37 | A. A. 32 M | Sep. 11 | C. H. W. | Dr. P. R. Dodwell | Large right ovarian cyst : (15½ lbs.). Small cyst in left ovary punctured | 12″ long |
| 38 | M. C. 55 M | Sep. 11 | Do. | Dr. C. H. McIlraith | Large right ovarian cyst | — |
| 39 | R. C. 21 S | Oct. 2. | Do. | Dr. J. Maynard | Large left parovarian cyst (14 lbs.) | — |
| 40 | H. R. 64 M | Oct. 12 | P. W. H. | Dr. A. Southcombe | Large left ovarian cyst, with twisted pedicle | 7½″ long |
| 41 | A. S. 43 S. | Nov. 25 | P. | Dr. P. R. Dodwell | Large right ovarian cyst (14 lbs.). 2 interstitial uterine fibroids enucleated | 12″ long |

| Wound. | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| S. S. | "Ever so much better since the operation than for years before" | Uterus normal: right ovary large, cystic and prolapsed | Has been married 4½ months | Feb. 2, 1908 |
| 12" long | "Good: much better than before operation" | Uterus and right ovary normal | Had a miscarriage at 5 weeks 4 months after operation. Sex feeling increased since operation | Mar. 8, 1906 |
| 10½" long | Very good, but slightly anæmic | Uterus and left ovary normal | — | Feb. 13, 1908 |
| S. S. | Moderate: lack of energy; but better than before operation | Uterus and right ovary normal | Six years ago, after a fall, she lost all sexual desire and feeling; since the operation both have been quite natural again | Nov. 1, 1906 |
| — | "Very good indeed" | Uterus and right ovary normal | — | Jul. 12, 1907 |
| — | "Very good: very much better than before operation" | Uterus and left ovary normal | — | Mar. 19, 1908 |
| S. S. | "Very good: quite different, in fact" | Uterus and right ovary normal | — | Feb. 13, 1908 |
| 9½" long | "Very well indeed: better and stronger" | Uterus retroverted: left ovary normal | — | July 3, 1907 |
| S. S. | "Very good" | Small pedunculated fibroid of uterus: right ovary normal | — | May 15, 1909 |
| 12" long | Very good until last month: then some pain in left side | Uterus large: left ovarian cyst size of orange | Left appendages removed for hydrosalpinx and broad ligament cyst, Nov. 18 1907 | Oct. 8, 1907 |
| — | Patient died of uræmia a year after operation | | | |
| — | "Much better: can get about much better" | Uterus and right ovary normal | — | Oct. 5, 1906 |
| 7½" long | Good, but breath gets short: better than before operation | Uterus and right ovary normal | — | July 11, 1907 |
| 12" long | "Splendid" | Uterus normal: no fibroids: left ovary normal | — | May 8, 1907 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound. |
|---|---|---|---|---|---|---|
| 42 | H. M. 33 M | Dec. 3 | P. | Dr. R. W. Moffat | Right ovarian cyst | — |
| 43 | L. T. 46 S | Dec. 12 | P. | Dr. C. H. McIlraith | Large right ovarian cyst | — |
| 44 | A. R. 27 S | 1906 Feb. 11 | P. | Dr. Percival Barnes | Large left parovarian cyst | — |
| 45 | E. W. 25 M | Feb. 22 | P. | Dr. J. A. Maclaren | Large right parovarian cyst: left salpingostomy for hydrosalpinx | — |
| 46 | E. D. 40 M | Feb. 24 | C. H. W. | Sir Joseph Fayrer | Right tubo-ovarian cyst with twisted pedicle | — |
| 47 | W. W. 18 S | Mar. 12 | Do. | Dr. J. Angell James | Large left ovarian cyst (15 lbs.) | 12″ long |
| 48 | M. H. 54 M | Mar. 19 | Do. | Dr. E. Philip | Left ovarian cyst | — |
| 49 | S. B. 46 S | Apr. 2 | Do. | Dr. T. Jackson | Large left ovarian cyst (18 lbs.) | 10″ long |
| 50 | L. R. 75 W | May 28 | Do. | Dr. Webb | Left ovarian fibroma (duration of operation: 8 minutes) | — |
| 51 | A. W. 32 M | Oct. 15 | Do. | Staff-Surgeon Adolphus Ross | Left cystic and prolapsed ovary | — |
| 52 | M. G. 60 S | Oct. 25 | P. | Dr. H. Powell | Right ovarian carcinoma | — |
| 53 | J. B. 51 M | Nov. 1 | P. W. H. | Dr. R. M. Leslie | Right solid ovarian tumour: enormous distension by hydroperitoneum | — |
| 54 | I. S. 25 M | Nov. 5 | C. H. W. | Dr. S. R. Schofield | Right ovarian cyst with twisted pedicle and adhesions to abdominal wall. Pregnancy 7½ months | — |
| 55 | M. M. 38 M | Nov. 26 | Do. | Dr. Ogier Ward | Small left ovarian cyst, with many dense adhesions | — |

| Wound. | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | Has suffered several years from severe rheumatoid arthritis | Uterus and left ovary normal | Had 4 months' amenorrhœa and during that time she felt "sexless." Took ovarian tabloids. Menstruation returned and "sexlessness" disappeared | April 8, 1907 |
| — | Variable: sometimes weak: about the same as before operation | Uterus and left ovary normal | — | Dec. 12 1906, |
| — | Patient died of intestinal obstruction July, 1906 | | | |
| — | "Wonderfully well: more energy." Used to have dysmenorrhœa and menorrhagia | Uterus normal: left appendages feel normal | — | June 24, 1908 |
| — | Good except for headaches: "better" | Uterus and left ovary normal | — | Oct. 9, 1907 |
| 12"long | "Very good: much better" | Uterus and right ovary normal | — | Oct. 23, 1907 |
| — | "Very good: much better" | Uterus and right ovary normal | — | April 15, 1907 |
| 10"long | "Very good except for indigestion: better than before operation" | Uterus retroverted: Right ovary normal | — | Oct. 17, 1907 |
| — | "Verg good: I get about much better than before" | Uterus and right ovary normally atrophied | — | Oct. 10, 1907 |
| — | "Fair, not strong yet, but decidedly better than before operation" | Uterus and right ovary normal | Some dyspareunia since the operation | Oct. 30, 1907 |
| — | Patient became melancholic in September, 1907, and committed suicide by throwing herself out of the window | | | |
| — | "As well as can be" | Uterus and left ovary normal | — | Feb, 25, 1908 |
| — | Very well except for varicose veins and pain near umbilicus | Uterus and left ovary normal — ? adhesions | Normal confinement of a girl, December 27 1906 | April 13, 1908 |
| — | "Good: very much better health than for years" | Patient not seen, living in S. Africa: report by letter | — | Dec. 3, 1907 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound | Gene |
|---|---|---|---|---|---|---|---|
| 56 | E. P. 43 M | Nov. 29 | P. W. H. | Dr. A. Atkinson | Left ovarian dermoid | — | "Very better : |
| 57 | E. T. 17 S | Nov. 29 | Do. | Dr. J. MacVine | Large right ovarian cyst (31 lbs.) | 13"lon | "Very better |
| 58 | K. W. 49 M | Dec. 3 | C. H. W. | Dr. J. D. Windle | Right ovarian cyst | — | Very g epilept |
| 59 | E. C. 54 M | 1907 Jan. 3 | P. W. H. | Dr. F. C. Wood | Large left ovarian cyst with twisted pedicle and intra-cystic papilloma | 7"lon | "Seems ever s than b |
| 60 | A. K. 28 M. | Jan. 3 | Do. | Dr. G. Plaister | Small right ovarian cyst | S. S. | Good e gestion worse |
| 61 | E. K. 32 S. | Feb. 11 | C. H. W. | Dr. G. Macnaughten | Large left ovarian cyst | — | "Very health strong |
| 62 | M. M. 38 M. | Feb. 25 | C. H. W. | Dr. A. H. Richmond | Left ovarian cyst | — | Fairly heada pation |
| 63 | S. H. 34 M. | Mar. 11 | Do. | — | Large left parovarian cyst | S. S. | Fair : until |
| 64 | J. P. 44 M. | Mar. 28 | P. W. H. | Dr. H. Distin | Right parovarian cyst | — | "Mode feel ti |
| 65 | A. N. 33 M | May 2 | Do. | — | Left ovarian cyst | S. A. | Very lupus |
| 66 | M. W. 29 S. | May 9 | Do. | Dr. F. J. Tresilian | Large right ovarian cyst | — | Poor : and "bett |
| 67 | M. P. 37 M. | May 9 | Do. | — | Right multilocular ovarian dermoid | — | "Very bette from |
| 68 | A. H. 28 M. | May 26 | P | Dr. Gordon Hull | Right ovarian cyst, impacted in the pelvis | — | "Very bette |
| 69 | F. H. 35 M. | June 24 | C. H. W. | Dr. P. R. Dodwell | Left ovarian cyst. Resection of small cyst in right ovary | S. S. | "Very bette troub befor |
| 70 | H. M. 40 M | July 8 | P | Sir Joseph Fayrer | Right ovarian dermoid. Resection of cyst in left ovary | — | Poor worr befo |

| Wound | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | "Very good: a lot better: as strong again" | Uterus and right ovary normal | — | Feb. 26, 1908 |
| 13" long | "Very good: much better" | Hymen intacta: per rectum no abnormality felt | — | May 1, 1908 |
| — | Very good, except for epileptic fits | Uterus and left ovary normal | — | May 1, 1909 |
| 7" long | "Seems pretty fair: ever so much better than before operation" | Uterus and right ovary normal | — | Feb. 13 1908 |
| S. S. | Good except for indigestion: "not any worse" | Uterus and right ovary normal | — | April 9, 1908 |
| — | "Very good: better in health but not yet as strong as before" | Uterus and right ovary normal | — | Feb. 13, 1908 |
| — | Fairly good, except for headaches and constipation: "better" | Uterus and right ovary normal | — | Oct. 17, 1009 |
| S. S. | Fair: was much better until a few weeks ago | Uterus and right ovary normal | None: premature menopause 14 months ago | May 16, 1908 |
| — | "Moderate: always feel tired" | Uterus and left ovary normal | — | Feb. 18, 1908 |
| S. A. | Very good, except for lupus | Uterus and right ovary normal | — | May 14, 1909 |
| — | Poor: has indigestion and feels weak: "better in some ways" | Uterus and left ovary normal | — | Mar. 25, 1908 |
| — | "Very good: much better as I am free from pain" | Uterus and left ovary normal | — | May 20, 1908 |
| — | "Very healthy: much better in every way" | Uterus and left ovary normal | Normal confinement of a girl, June 19 1908 | May 12, 1909 |
| S. S. | "Very good: much better: it was a trouble to walk before" | Uterus and right ovary normal | — | May 12, 1909 |
| — | Poor: has had much worry: better than before operation | Uterus large, canal patulous: left ovary normal | — | July 31, 1909 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound |
|---|---|---|---|---|---|---|
| 71 | C. L. 35 M | July 19 | Wood Green Hospltal | Dr. Slater Jones | Right ovarian cyst (5½ lbs.) removed 17 days after confinement | — |
| 72 | F, D. 44 M | Sept. 9 | C. H. W. | Dr. R. S. Pearson Dr. A. W. W. Dowding | Left parovarian cyst | — |
| 73 | J. R. 35 M | Sept. 12 | P. W. H. | — | Large left ovarian cyst (10 lbs.) | — |
| 74 | E. E. 65 M | Nov. 7 | Do. | — | Large right solid ovarian cyst, partly breaking down | — |
| 75 | E. W. 39 M | Nov. 9 | P. | Dr. G. C. Phillips Dr. K. Frazer | Right ovarian cyst | — |
| 76 | L. B. 38 M. | Dec. 19 | P. W. H. | Dr. R. Morrow | Right multilocular ovarian dermoid. Pregnancy 3 months | — |
| 77 | M. L. 37 M | 1908 Jan. 23 | Do. | — | Left parovarian cyst with twisted pedicle | S. S. |
| 78 | E. H. 68 M | Jan. 23 | Do. | — | Large left ovarian cyst, partly ruptured : peritonitis : dense adhesions | — |
| 79 | N. C. 30 M | Mar. 28 | P. | — | Right ovarian cyst : pregnancy 4 months : chronic appendicitis | S. S. |
| 80 | M. A. T. 34 M | April 23 | P. W. H. | Dr. G. P. Chappel | Multilocular right ovarian dermoid : twisted pedicle (3 turns) | — |
| 81 | F. F. 34 M | May 18 | C. H. W. | Dr. J. D. Windle | Both ovaries left : enucleation of a retroperitoneal dermoid with epithelial perles. Drainage for a few days | — |
| 82 | A. H. 62 S | May 21 | P. W. H. | Dr. J. S. F. Weir | Large multilocular left ovarian cyst | — |
| 83 | M. D. 37 M | June 1 | C. H. W. | Dr. A. P. Scott | Large multilocular left ovarian cyst | — |
| 84 | K. B. 41 M | June 11 | P. W. H. | — | Large multilocular left ovarian cyst partly ruptured | — |

| Wound | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | "I saw her about 6 months ago, when she was in perfect health, and regular." Doctor's letter | | | Sept. 29, 1909 |
| — | "Better, happier and brighter" | Uterus and right ovary normal | — | Jan. 18, 1909 |
| — | "Wonderfully well" | Uterus and right ovary normal | — | Oct. 7, 1908 |
| — | Good, but weak: can walk further on the level | Uterus and left ovary normal | — | May 11, 1909 |
| — | Fairly good: some aching in left side | Uterus and left ovary normal | — | May 5, 1908 |
| — | Feels weak: cannot do washing or cleaning | Uterus and left ovary normal | Normal confinement of a boy on June 25 1908 | Dec. 1, 1908 |
| S. S. | "Very good indeed: "I don't think I ever felt better" | Uterus and right ovary normal | — | Sept. 14, 1908 |
| — | Good, but weak | Behind uterus and to the right is a tense cystic swelling: either right ovarian or encysted collection of fluid in the peritoneal cavity | Patient died of recurrence of the growth, Sept. 9 1909 | May 11, 1909 |
| S. S. | Very good | Uterus retroverted: left ovary prolapsed and a little cystic | Normal confinement of a boy on August 2 1908 | May 14, 1909 |
| — | Good, except for indigestion | Uterus and left ovary normal | — | May 10, 1909 |
| — | Very good, but weak: "much better than before operation" | Uterus and both ovaries normal | — | May 11, 1909 |
| — | "Fairly good: better and stronger than before" | Uterus small: right ovary normal | — | Oct. 13, 1909 |
| — | "Remarkably well: much better than before operation" | Uterus and right ovary normal | — | May 13, 1909 |
| — | Good, but irritable: "much better than before operation" | Uterus and right ovary normal | Had 6 months' amenorrhœa till a few days ago | May 13, 1909 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound. | Gene |
|---|---|---|---|---|---|---|---|
| 85 | J. R. 26 M | July 16 | Do. | Dr. A. R. Wainwright | Right lutein hæmatoma (with symptoms of extrauterine pregnancy) | — | Good til |
| 86 | M. D. 40 M | July 23 | Do. | — | Right ovarian papillomatous cyst : small uterine fibroid : enucleated. Cystic left ovary —cyst resected | — | Very g weak : better" |
| 87 | A. L. 38 M | Oct. 8 | Do. | Dr. L. Gordon | Left unilocular ovarian cyst, size of large orange | — | Fairly work h lot of |
| 88 | M. C. 54 M | Nov. 1 | P. | Dr. Llewellyn | Right ovarian dermoid : cystocele and rectocele | — | Fairly g strong before |
| 89 | C. C. 23 M | 1909 Jan. 18 | Sutton Hospital | Dr. R. J. Willson | Left ovarian dermoid with twisted pedicle (2½ turns) | — | "Very better" |
| 90 | E. M. D. 33 M | Feb. 4. | P. W. H. | Dr. C. E. Hutt | Right parovarian cyst | — | "Very better |
| 91 | L. H. 27 M | April 29 | Do. | Dr. A. Brodribb | Right ovarian dermoid cyst : pregnancy 4 months | — | Has be with a "As w |
| 92 | F. B. 35 S | May 6 | Do. | Dr. G. P. Chappel | Large right multilocular ovarian tumour | — | "Very much than years" |
| 93 | M. P. 62 M | June 8 | P. | Dr. Fell | Large right ovarian cystic adenoma (11½ lbs.) | — | Very g bad th better |
| 94* | H. B. 53 M | June 24 | P. W. H. | — | Large right ovarian tumour (? malignant) : adenoma of the breast | — | "Very |
| 95 | A. D. 46 M | July 13 | P. | Dr. M. G. Biggs | Large right multilocular ovarian cyst (30 lbs.) | — | "Splen ter : do an |
| 96 | M. E. 26 M | July 16 | Acton Hospital | Dr. H. J. Thornton | Large left multilocular ovarian cyst (10½ lbs.) | — | "Very much a lon |
| 97 | E. C. 30 M | July 24 | P. W. H. | Dr. F. H. de G. Best | Left ovarian hæmatoma in hydrops follicularis | — | "Very not f |

* NOTE.—On March 3, 1910, this patient was found to be suffering from hydroperitoneum, with nodules of recurrent growth all down the scar.

| Wound. | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | Good till lately | Uterus normal: swelling connected with left appendages | Operation for left ovarian pregnancy, Feb. 4 1909 | Feb. 2, 1909 |
| — | Very good, but still weak: "ever so much better" | Uterus normal—no fibroids: left ovary normal | — | May 12, 1909 |
| — | Fairly well: has to work hard, and has a lot of worry | Uterus and right ovary normal | Menstruation rather irregular lately | May 12. 1909 |
| — | Fairly good, not quite strong: better than before | Uterus and left ovary normal: perineum sound: no cystocele | — | Nov. 15, 1909 |
| — | "Very well: much better" | Uterus enlarged to size of 5 months pregnancy: right ovary normal | Now pregnant, 5 months | Dec. 16, 1909 |
| — | "Very good: a lot better" | Uterus and both ovaries normal | — | Nov. 24, 1909 |
| — | Has been rather weak with a poisoned hand. "As well as before" | Uterus retroverted: left ovary normal | Confinement of a boy on Sept. 27 1909: "quite natural" | Dec. 9, 1909 |
| — | "Very well indeed: much better lately than I have felt for years" | Uterus and left ovary normal | — | Dec. 9, 1909 |
| — | Very good, except for bad throat. Can walk better | Uterus and left ovary normal | — | Jan 12, 1910 |
| — | "Very good: better" | Uterus and left ovary normal | — | Dec. 6, 1909 |
| — | "Splendid: much better: I can walk and do anything" | Uterus and left ovary normal | — | Dec. 20, 1909 |
| — | "Very good indeed: much better than for a long time" | Uterus and right ovary normal | — | Dec. 18, 1909 |
| — | "Very good: I did not feel ill before" | Uterus and right ovary normal: cystocele: deficient perineum | — | Dec. 14, 1909 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound. | Gene |
|---|---|---|---|---|---|---|---|
| The following cases are taken from Division U, where a Hysteropexy was done at the same time. For our present purpose the particulars about the Uterus are omitted. | | | | | | | |
| 98 | F. H. 31 M | 1898 Sept. 19 | C. H. W. | — | Right cystic ovary | — | "Very better" |
| 99 | R. H. 40 M | 1900 Aug. 10 | P. W. H. | — | Left cystic ovary | — | "On the |
| 100 | R. Q. 42 M | 1902 Sept. 25 | Do. | Dr. R. B. Marjoribanks | Small left ovarian cyst | — | "Very better" |
| 101 | M. G. 27 M | Oct. 2. | Do. | — | Two hæmorrhagic cysts in right ovary | — | "Pretty fits: n |
| 102 | A. P. 29 M | 1903 Feb. 6 | Do. | — | Left cystic ovary | S. S. | "I fee what I operati |
| 103 | S. S. 42 M | April 30 | Do. | — | Left ovarian cyst | — | Good: |
| 104 | E. C. 23 M | Oct. 5 | C. H. W. | — | Right ovarian cyst | S. A. | Good, b left si |
| 105 | H. K. 47 W | 1904 Jan. 29 | P. | Dr. R. S. Pearson | Right cystic ovary | S.A.:H. | "Very better been f |
| 106 | L. H. 26 S. | Feb. 18 | P. W. H. | Dr. J. Angell James | Right cystic ovary | S. S. | "Very better |
| 107 | J. B. 30 M | May 1 | P. | Dr. H. Lloyd Patch Dr. C. Lawson Smith | Right cystic ovary | — | "Very quite |
| 108 | F. G. 27 M | Dec. 1 | P. W. H. | Dr. S.E. Tench | Right ovarian dermoid | — | "No before less a |
| 109 | C. S. 24 M | 1905 May 25 | Do. | — | Left cystic and prolapsed ovary | — | Good, weak: |
| 110 | C. E. 44 M | Oct. 5 | Do. | — | Small right ovarian cyst | — | Moder attach a lot so w |
| 111 | E. M. 31 M | Dec. 14 | Do. | — | Small left ovarian cyst | — | "Very |
| 112 | A. R. 27 M | 1906 Jan. 8 | C. H. W. | — | Left cystic ovary | S. S. | "I fel had |

| Wound. | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| same | | | | |
| — | "Very good: much better" | Left ovary normal | Confinement of a girl, June 8 1902. Dyspareunia before operation, not since | Feb. 1, 1906 |
| — | "On the whole better" | Right ovary normal | Less dyspareunia since operation | Feb. 20, 1906 |
| — | "Very good: much better" | Thickening in position of distal end of right tube and ovary | — | Mar. 14, 1908 |
| — | "Pretty good": has fits: much better | Left ovary and tube rather large | Has had dyspareunia since operation, and feeling and desire have been less | Feb. 5, 1906 |
| S. S. | "I feel excellent to what I did before the operation" | Right ovary normal | Normal confinement of a girl, April 1 1901 | July 17, 1906 |
| — | Good: "better" | Right ovary normal | — | Mar. 20, 1906 |
| S. A. | Good, but gets pain on left side | Left appendages much enlarged | Operation for left salpingo-oöphoritis, October 31 1904 | Sept. 30, 1904 |
| S.A.:H. | "Very good: much better than I have been for many years" | Left ovary normal | Operation for scar hernia | Nov. 1, 1904 |
| S. S. | "Very good: much better" | Left ovary normal | Patient married subsequently: (*a*) confinement of a boy, July 29 1905; (*b*) confinement of a boy, July 24 1906 | Mar. 20, 1908 |
| — | "Very good: I feel quite different" | Left ovary normal | — | Nov. 24, 1905 |
| — | "No stronger than before, but I suffer less at the periods" | Not seen. Letter from patient | — | Mar. 26, 1908 |
| — | Good, but feeling weak: "much better" | Right ovary normal | Had dyspareunia for 2 years before operation: none since | April 26, 1906 |
| — | Moderate: has nervous attacks and has had a lot of trouble: "not so well" | Left ovary normal | — | April 2, 1908 |
| — | "Very good: better" | Right ovary normal | — | July 26, 1906 |
| S. S. | "I felt beautiful till I had the baby" | Right ovary normal | Confinement of a boy, Feb. 17 1907 | Oct. 24, 1907 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound. |
|---|---|---|---|---|---|---|
| 113 | E. P. 36 M | June 26 | P. | Dr. E. B. Randall | Right cystic ovary | — |
| 114 | E. H. 60 M | July 26 | P. W. H. | — | Right ovarian dermoid | — |
| 115 | S. F. 35 W | Nov. 26 | C. H. W. | — | Right ovarian dermoid | — |
| 116 | J. T. 54 M | 1907 Apr. 8 | Do, | — | Small right ovarian cyst | — |
| 117 | M. B. 26 M | June 3 | Do. | Dr. Campbell | Left cirrhotic ovary | — |
| 118 | C. M. 56 M | June 4 | P. | — | Right ovarian cyst | — |
| 119 | M. H. 41 M | June 13 | P. W. H. | — | Small right ovarian cyst | — |
| 120 | M. F. 26 S | Dec. 9 | C. H. W. | Dr. G. Porter | Left cystic and prolapsed ovary | — |
| 121 | E. P. 32 S | 1908 April 27 | Do. | — | Cystic left ovary | — |
| 122 | M. W. 47 M | April 30 | P. W. H. | Dr. H. Powell | Small left ovarian cyst | S. S. |
| 123 | E. G. 29 M | July 2 | P. | Dr. W. R. Orr | Cystic left ovary | S. A. |
| 124 | J. S. 35 M | 1909 Feb. 4 | P. W. H. | Dr. A. R. Wainwright | Left ovarian hæmorrhagic cyst | S. S.: S. A. |
| 125 | A. D. 46 M | Feb. 18 | Do. | Dr. Montagu Miller | Cystic left ovary, with varix of left broad ligament | — |

The following cases are taken from Division R. Only the condition of the Ovary is here noted.

| | | | | | | |
|---|---|---|---|---|---|---|
| 126 | M. R. 47 M | 1903 May 21 | P. W. H. | Dr. F. J. Tresilian | Left cystic ovary | — |
| 127 | A. B. 42 W | 1906 April 9 | C. H. W. | Dr. Mark Robinson | Right ovarian hæmorrhagic cyst | — |
| 128 | M. C. 40 M | 1909 Mar. 8 | Do. | Dr. J. D. Windle | Large left ovarian cyst | — |

| Wound. | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | Has had fistulæ in ano: otherwise well | Left ovary large and tender | — | Mar. 20, 1908 |
| — | Very good except for bronchitis: much better | Left ovary normal | — | July 9, 1907 |
| — | "Very good: ever so much better" | Left ovary normal | — | Nov. 1, 1909 |
| — | Fairly good: was much better till a few months ago | Left ovary normal | — | Oct. 13, 1909 |
| — | "Fairly good: very much better than I was" | Right ovary normal | Less dyspareunia since operation | Jun. 3, 1908 |
| — | "Very good: I can get about much better" | Left ovary normal | — | Mar. 18, 1908 |
| — | Very good till 5 weeks ago | Left tubal pregnancy | Operation for ruptured left tubal pregnancy, Sept. 16 1909 | Sept. 16, 1909 |
| — | Markedly neurasthenic | | — | Oct. 8, 1909 |
| — | Very good for first six months: then pain on right side | Right appendages enlarged | On February 15 1909, operation for right salpingo-oöphoritis with adhesions: right tube and half the ovary removed | Feb. 6, 1909 |
| S. S. | "Fairly good: much better" | Right ovary normal | — | Nov. 27, 1909 |
| S. A. | "Good: much better" | "All in healthy condition." Doctor's report | Now 2½ months pregnant | Oct. 5, 1909 |
| S. S.: S. A. | "I feel splendid: very much better'' | Cystic swelling on right side | Had dyspareunia before operation: none since | Dec. 8, 1909 |
| — | "Very good: much better" | Right ovary enlarged to size of an orange | Had dyspareunia before operation: none since | Dec. 17, 1909 |
| noted. | | | | |
| — | Poor, because of headache and weakness: but much better than before | Right ovary normal | — | Mar. 18, 1908 |
| — | "Very good: always had good health" | Left ovary normal | — | Oct. 22, 1907 |
| — | Very good till lately: was feeling very much better | Right ovary normal | — | Dec. 17, 1909 |

## TABLE B.

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound | Genera |
|---|---|---|---|---|---|---|---|
| 1 | J. T. 27 M | 1894 Sept. 24 | C. H. W. | — | Left salpingo-oöphoritis | — | Very goo on right |
| 2 | E. P. 23 S | 1897 April 15 | Do. | — | Right pyosalpinx and suppurating ovarian cyst | — | Very goo when s extraute nancy d |
| 3 | A. H. 26 M | 1902 Jan. 27 | Do. | Dr. Hall Hains | Right suppurating broad ligament cyst: cystotomy: appendages not removed | Sinus | Good: "I but gets |
| 4 | B. A. 37 M. | Dec. 7 | P. | Dr. J. MacVine | Left pyosalpinx | — | Good: " |
| 5 | F. B. 27 M | June 4 | P. W. H. | — | Left salpingo-oöphoritis | — | Feels v from better operati |
| 6 | E. B. 27 M | Sept. 7 | C. H. W. | — | Double salpingitis and adherent appendix: removal of right appendages, left Fallopian tube and appendix | — | Good, b "decid |
| 7 | F. M. 26 M | Oct. 14 | P. W. H. | Dr. G. P. Chappel | Double pyosalpinx: removal of right apendages and left Fallopian tube | Sinus till June, 1905 | "Very than b |
| 8 | A. W. 38 M | 1904 Jan. 19 | C. H. W. | Dr. P. R. Dodwell | Large left tubo-ovarian abscess | — | "Very better |
| 9 | E. C. 25 S | Feb. 4 | P. W. H. | Dr. W. Adams Clark | Right tuberculous salpingitis and peritonitis | S. S.: S. A | "Very than sound weigh |
| 10 | A. B. 30 M | Dec. 8 | Do. | Dr. G. P. Chappel | Left pyosalpinx: acute peritonitis | H. | "Feel |
| 11 | S. B. 35 M | 1905 May 11 | Do. | — | Left pyosalpinx and suppurating ovarian cyst | H. | Very bett went tion |
| 12 | A. A. 28 M | 1906 Mar. 1 | Do. | — | Acute right pyosalpinx: readmitted 5 weeks later for a right pelvic abscess, which was drained through a lateral incision | S. A.: H. | "Fai seen |
| 13 | E. R. 22 M | Dec. 13 | Do. | — | Right pyosalpinx and suppurating ovarian cyst | — | "Ve bet |

| Wound | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | Very good: pain lately on right side | Right salpingo-oöphoritis | The appendages of the right side were removed in May 1896 | April, 1896 |
| — | Very good till lately, when symptoms of extrauterine pregnancy developed | Considerable swelling in connection with left appendages | Left appendages removed for tubal pregnancy, November 1901 | November, 1901 |
| Sinus | Good: "much better;" but gets tired quickly | Uterus and appendages normal | In February 1904 the sinus was explored: it led to intestine, and a circular enterorrhaphy was done | *a.* June 18, 1903 *b.* April 29, 1907 |
| — | Good: "much better" | Uterus and right appendages normal | — | June 27, 1905 |
| — | Feels week: suffers from indigestion: better than before operation | Uterus and right appendages normal | — | Oct. 4, 1907 |
| — | Good, but easily tired: "decidedly better" | Uterus and left ovary normal | — | Nov. 25, 1904 |
| Sinus till June, 1905 | "Very good": better than before operation | Uterus and left ovary normal | — | Dec. 15, 1905 |
| — | "Very good: much better than for years" | Uterus normal: right tube and ovary enlarged | Miscarriage at 4 months in 1905 | June 25, 1907 |
| S. S.: S. A | "Very good: better than before." Lungs sound: has gained in weight | Uterus retroverted, partly fixed: left ovary and tube normal | — | July 6, 1909 |
| H. | "Feel quite well" | Uterus and left appendages normal | Normal confinement, Dec. 14 1906 | Aug. 2, 1907 |
| H. | Very good: "much better woman since I went under operation" | Uterus and right appendages normal | — | July 13, 1909 |
| .A.: H. | "Fairly good: nerves seem rather bad" | Uterus and left appendages normal | Radical cure of scar herniæ was done in November 1907 | Feb. 22, 1907 |
| — | "Very good: much better" | Uterus and left appendages normal | — | Dec. 4, 1907 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound |
|---|---|---|---|---|---|---|
| 14 | S. S. 32 M | 1907 Jan. 3 | P. W. H. | Dr. D. McAskie | Right tubo-uterine and ovarian abscess, pelvic peritonitis and dense general adhesions. Removal of right appendages and uterine cornu | S. S. : S. A. |
| 15 | A. W. 31 M | Feb. 18 | C. H. W. | — | Double pyosalpinx : removal of right appendages and left tube | — |
| 16 | A. S. 28 S | Mar. 18 | Do. | Col. Thornhill | Left pyosalpinx and suppurating ovarian cyst : right salpingitis. Removal of left appendages and right tube | — |
| 17 | M. M. 24 M | Oct. 15 | P. | Dr. F. Taylor | Right pyosalpinx : subacute appendicitis. Appendix and right appendages removed | S. S. |
| 18 | S. W. 44 M | Nov. 20 | Do. | Dr. Horace Wilson | Right pyosalpinx and acute appendix abscess | H. |
| 19 | G. B. 22 S | Dec. 1 | Do. | Dr. Montagu Smith | Right acute salpingitis with adhesion to floor of pelvis | S. S. |
| 20 | E. C. 22 M | Dec. 19 | P. W. H. | — | Double salpingitis with occlusion : small right ovarian cyst. Removal of right appendages and left tube | — |
| 21 | M. H. 25 M | 1908 April 2 | Do. | — | Right interstitial salpingitis (?tubero) and ovarian blood-cyst. Left salpingitis with occlusion : left salpingostomy | S. S. |
| 22 | A. M. 41 M | April 27 | C. H. W. | Dr. McGlashan | Large right hydrosalpinx | — |
| 23 | M. B. 47 S | June 13 | P. W. H. | Dr. J. D. Macdonogh | Acute right pyosalpinx. Removal of right appendages (by resection) | — |
| 24 | L. H. 19 M | Sept. 24 | Do. | Dr. D. Petty | Left tubo-ovarian abscess : right salpingitis. Left appendages removed | — |
| 25 | A. E. C. 27 M | Oct. 19 | C. H. W. | Dr. Lysander Maybury | Double pyosalpinx : right ovarian cyst. (Left ovary left behind) | S. S. |

| Wound. | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| S. S.: S. A. | Very good: "much better, and more spirit in me" | Uterus and left appendages normal: fornices clear | — | Feb. 22, 1908 |
| — | Has felt weak; but better than before operation | Uterus and left appendages normal: a thickened band at base of right ligament | Had dyspareunia before operation: not since | June 25, 1909 |
| — | "Very good": much better than before | Uterus and right ovary normal | — | April 24, 1908 |
| S. S. | "Awfully good: much better than before" | Uterus normal: left ovary rather large | Normal confinement of a boy, November 10 1908 | Sept. 27, 1909 |
| H. | "Good, but easily tired: very much improved; for 2 years before the operation I was a wreck" | Uterus retroverted: left appendages normal | Had amenorrhœa for 7 months after operation: after that menstruation returned regularly | Jan. 1, 1909 |
| S. S. | "Nerves and heart bad": still a semi-invalid | Uterus and left appendages normal | — | May 27, 1909 |
| — | "Very good: never felt so well since I have been married" | Uterus bulky: left appendages normal | — | May 22, 1909 |
| S. S. | "All right: better than before operation" | Uterus and left appendages normal | — | May 14 1909 |
| — | "Very good: much better in all ways" | Uterus and left appendages normal | — | June 23, 1909 |
| — | "Pretty fair: much better than before" | Uterus and left appendages normal: deficient perineum | — | May 16, 1909 |
| — | Very good: "a lot better: I was very bad before and could not walk" | Uterus and right appendages normal | — | May 1, 1909 |
| S. S. | Rather poor because of indigestion: better and stronger than before operation | Uterus normal size and position: left ovary normal | — | Oct. 15, 1909 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound |
|---|---|---|---|---|---|---|
| 26 | E. A. 24 M | 1909 Jan. 28 | P. W. H. | Dr. F. C. Wood | Double pyosalpinx and right ovarian cyst: removal of right appendages and left tube | S. S. |
| 27 | A. E. B. 33 M | Mar. 29 | C. H. W. | Dr. W. Murray Leslie | Double salpingitis and right cystic ovary. Left ovary preserved | — |
| 28 | E. H. 17 S | April 29 | P. W. H. | Dr. J. D. Power | Acute double pyosalpinx: septic peritonitis with intraperitoneal abscess and extensions into both lumbar regions. Left ovary preserved | — |
| 29 | E. W. 29 M | July 15 | Do. | Dr. R. M. Leslie | Right pyosalpinx: left salpingitis. Left ovary preserved | — |
| The following cases are taken from Division U: only the particulars about the appendages are given here. | | | | | | |
| 30 | L. W. 28 M | 1902 Sept. 18 | P. W. H. | — | Left salpingitis | S. S. |
| 31 | E. G. 34 M | 1904 June 9 | Do. | Dr. C. J. Harrison | Double salpingitis: left appendages removed | S. S. |
| 32 | A. E. 40 M | 1905 April 13 | Do. | — | Left salpingitis | S. A. |
| 33 | F. G. 43 M | 1906 Jan. 29 | C. H. W. | — | Right hydrosalpinx | S. A. |
| 34 | R. D. 38 M | Feb. 1 | P. W. H. | — | Left hydrosalpinx | — |
| 35 | M. B. 36 W | Feb. 22 | Do. | Dr. Basil Price | Double salpingitis: right appendages removed | — |
| 36 | M. B. 35 M | Feb. 26 | C. H. W. | Dr. Kenneth Frazer Dr. Ross | Double salpingitis: left ovary and both tubes removed | — |
| 37 | M. G. 33 M | June 18 | Do. | Dr. E. Philip | Left hydrosalpinx: tube alone removed | — |
| 38 | R. H. 47 W | June 25 | Do. | — | Double salpingitis: left ovary and both tubes removed | S. A. |
| 39 | D. A. 27 M | Nov. 8 | P. W. H. | — | Double salpingitis—occlusion of right tube: right appendages removed | — |

| Wound | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| S. S. | Feels very well some days; run down after the periods | Uterus and left ovary normal | — | Dec. 15, 1909 |
| — | "Perfectly all right: ever so much better" | Uterus and left ovary normal | — | Oct. 23, 1909 |
| — | "Very well indeed: much better" | Uterus and left ovary normal | — | Dec. 10, 1909 |
| — | Moderate: depressed: lost a little girl 2 months ago | Uterus normal: small left ovarian cyst | — | Dec. 13, 1909 |
| S. S. | Good: much better | Right ovary normal | (*a*) Confinement of a boy, Aug. 1904; (*b*) confinement of a boy, Sept. 16 1906; (*c*) miscarriage at 3 months, Oct. 1907 | Dec. 19, 1907 |
| S. S. | "I have never been so well in my life as since the operation" | Right appendages feel normal | — | June 27, 1907 |
| S. A. | "Very much better: I cannot remember from a child being so free" | Left appendages normal | Had dyspareunia before operation: none since, and so more feeling | July 16, 1906 |
| S. A. | "Fairly well: easily tired: much better" | Left appendages normal | — | Oct. 14, 1907 |
| — | "Very good: I can't grumble at all: very much better" | Right appendages normal | — | Mar. 22, 1907 |
| — | Moderate: easily tired: about the same | Some thickening on the left side | — | Feb. 26, 1908 |
| — | "Variable: sometimes very well: much better" | Right ovary normal | Had dyspareunia before operation: none since, and so both desire and feeling have been increased | Dec. 17. 1907 |
| — | "Very well indeed: better than I have been for years" | Right tube and both ovaries normal | — | Mar. 6, 1908 |
| S. A. | Fairly good: "get muddled in my head: a lot better in myself" | Right ovary normal | — | Nov. 13, 1907 |
| — | "Very good: much better" | Left ovary normal | — | June 27, 1907 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound |
|---|---|---|---|---|---|---|
| 40 | A. H. 32 M | Dec. 3 | C. H. W. | — | Left hæmatosalpinx | — |
| 41 | A. K. 39 M | 1907 Jan. 9 | P. | Dr. A. Ogier Ward | Double salpingitis : removal of right ovary and both tubes | — |
| 42 | A. D. 27 M | Feb. 28 | P. W. H. | — | Double salpingitis : removal of right ovary and both tubes | — |
| 43 | M. B. 45 M | Nov. 4 | C. H. W. | Dr. Johnston Harris | Left hydrosalpinx | — |
| 44 | M. G. 31 M | 1908 Jan. 20 | C. H. W. | Dr. S. R. Schofield | Double salpingitis—right tube occluded : right appendages removed | — |
| 45 | N. H. 30 M | Feb. 10 | Do. | Dr. A. C. A. Packman | Double pyosalpinx : removal of right ovary and both tubes | — |
| 46 | C. H. 32 M | Feb. 17 | Do. | Dr. S. E. Tench | Left tubo-ovarian cyst : right salpingitis with occlusion. Removal of left appendages : right salpingostomy | — |
| 47 | K. T. 33 M | Mar. 16 | Do. | Dr. G. W. F. Macnaughton | Double salpingitis : ovarian cyst in left broad ligament. Removal of left ovary and both tubes | S. A. |
| 48 | B. H. 38 M | July 22 | P. | Dr. R. M. Low | Right hydrosalpinx | — |
| 49 | M. O'C. 30 M | Oct. 14 | P. W. H. | — | Right salpingitis | — |
| 50 | B. R. 23 M | Nov. 12 | Do. | — | Double salpingo-oöphoritis : removal of left appendages. Right salpingostomy | — |
| 51 | E. W. 48 M | 1909 Feb. 8 | C. H. W. | — | Left hæmatosalpinx | — |
| 52 | E. S. 33 M | Mar. 11 | P. W. H. | Dr. L. West | Left suppurating ovarian cyst : double salpingitis, especially left. Left appendages removed | — |
| 53 | L. J. 37 M | June 24 | Do. | — | Left hydrosalpinx | — |
| The following Case is from Division R. | | | | | | |
| 54 | A. H. 47 M | 1906 April 23 | C. H. W. | Dr. W. D. Murray | Double salpingitis : right tube removed : both ovaries preserved | — |

| General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|
| "Very good indeed: better" | Right appendages normal | (*a*) Confinement of a boy, Sept. 1907; (*b*) confinement of a boy, Oct. 23 1908 | June 23, 1908 |
| "Very good: a new woman" | Left ovary normal | — | Jan. 22, 1908 |
| "I have felt better since the operation than I did for years before" | Left ovary normal | — | Feb. 14, 1908 |
| "Fairly good, but easily tired: much better than before" | Right ovary normal | — | Oct. 9, 1909 |
| "Fairly good: subject to neuralgia" | Left ovary normal | - | Oct. 4 1909 |
| "Always weakly since she was a child: much better since the operation" | Left ovary not enlarged, but tender | — | Oct. 6, 1909 |
| "Very good: never felt so well in my life as during the last months" | Right ovary normal | Had dyspareunia before operation, but not since; so intercourse is more natural | Nov. 3, 1909 |
| "Very good: better altogether" | Right ovarian cyst size of a fist | — | Oct. 6, 1909 |
| "Very good: very much better" | Left ovary normal | — | July 24, 1909 |
| "Very good: much better" | Left appendages normal | — | Oct. 12, 1909 |
| "Very good: much better" | Right ovary prolapsed but not enlarged | — | Nov. 3, 1909 |
| "Very good: better" | Right ovary normal | — | Dec. 8, 1909 |
| "Very good: much better" | Right ovary enlarged to size of orange | Had dyspareunia before operation: none since | Dec. 17, 1909 |
| "Very good: better" | Right appendages normal | Had dyspareunia before operation: none since | Dec. 16, 1909 |
| "Very well, but nerves not quite strong: altogether better" | Both ovaries normal | — | April 25, 1907 |

## TABLE C.

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound. |
|---|---|---|---|---|---|---|
| 1 | R. R. 27 M | 1901 April 1 | C. H. W. | Dr. J. J. Gorham | Left tubal pregnancy | — |
| 2 | M. A. 28 M | June 22 | P. | Dr. P. McBride | Left tubal pregnancy, ruptured: abundant hæmorrhage | — |
| 3 | L de G. 32 M | July 20 | P. | Dr. J. A. MacLaren | Right tubal pregnancy, ruptured: severe hæmorrhage | — |
| 4 | K. S. 34 M | Nov. 3 | P. W. H. | Dr. J. Davidson | Right tubal pregnancy | — |
| 5 | R. L. 32 M | Nov. 18 | C. H. W. | Dr. Bell | Left tubal pregnancy | — |
| 6 | M. T. 29 M | Dec. 27 | P. W. H. | Dr. R. B. Marjoribanks<br>Dr. D. Fogarty | Left tubal pregnancy, ruptured: severe hæmorrhage | S. A: H. |
| 7 | J. P. 32 M | 1902 June 15 | P. | Dr. T. Brown | Right tubal pregnancy | — |
| 8 | M. R. 30 M | July 19 | P. W. H. | Dr. Carson Smyth | Left tubal pregnancy, ruptured | — |
| 9 | E. B. 31 M | 1903 May 28 | P. | Dr. E. J. Pritchard | Left tubal pregnancy | — |
| 10 | R. R. 35 M | Oct. 1 | Wood Green Hospital | Dr. R. F. Tomlin | Right tubal pregnancy | — |
| 11 | M. H. 25 M | 1904 May 5 | P. W. H. | — | Left tubal pregnancy, ruptured | — |
| 12 | J. P. 27 M | May 19 | Do. | — | Left tubal pregnancy and abortion | — |
| 13 | M. R. 37 M | July 18 | Do. | — | Left tubal pregnancy | — |
| 14 | S. C. 40 M | 1905 Jan. 19 | Do. | Dr. C. R. Salisbury | Left tubal pregnancy | — |

| General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|
| Moderate | Uterus retroverted | Hysteropexy performed on Sept. 22 1902 | Sept., 1902 |
| Very good: much better than for the last 9 years | Uterus normal: broad ligament cyst on right side | Operation for the removal of the cyst in March 1905 | Sept. 21, 1904 |
| Very good: "much better than before: I can do long walks" | Uterus and left appendages normal | An early miscarriage in Jan. 1907 | July 1, 1907 |
| Not strong: not so well in some respects | Uterus and left appendages normal | — | June 25, 1907 |
| Very good: "really better than I felt before" | Uterus and right appendages normal | Has had amenorrhœa since the operation | June 24, 1907 |
| Good: "as well as before" | Uterus and right appendages normal | Operation for radical cure of scar hernia in Dec. 1903. Sexual desire diminished since the first operation | Feb. 27, 1907 |
| Feels weak on exertion: "much less pain than before" | Uterus and left appendages normal | — | Nov. 5, 1903 |
| Very good: "better than I have felt for a very long time" | Uterus normal: right appendages normal | Has had 2 confinements, one boy and one girl. In Oct. 1906 abdominal myomectomy was done for a large degenerating subperitoneal fibroid | Oct. 10, 1907 |
| Good: "better than before" | Uterus and right appendages normal | — | July 27, 1904 |
| Very good: "I cannot grumble at all" | Uterus and left appendages normal | — | April 29, 1908 |
| Very good: "I really feel better" | Uterus small: appendages absent | Patient developed a right tubal pregnancy, with intraperitoneal rupture: operation May 28 1908 | May 28, 1909 |
| Very good: "better than before" | Uterus and right appendages normal | Normal confinement of a girl in January 1906 | June 15, 1907 |
| Variable: "sometimes very well: sometimes can hardly crawl about" | Uterus and right appendages normal | Had an illness necessitating another operation in April 1905: in December 1906 she was taken ill in the same way and had blood-poisoning for 4 months | July 9, 1907 |
| "Very good: never been better" | Uterus retroverted: right appendages normal | Miscarriage at 2½ months, Dec. 1906 | Feb. 8, 1907 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound. |
|---|---|---|---|---|---|---|
| 15 | G. W. 33 M | Feb. 19 | P. | Dr. F. J. Tresilian | Left tubal pregnancy at 8 months | — |
| 16 | G. W. 28 M | Apr. 6 | P. W. H. | Dr. J. Shaw | Left tubal pregnancy | S. S. |
| 17 | F. B. 30 M | Nov. 6 | C. H. W. | Dr. W. G. Gyton | Right tubal pregnancy | S. S. |
| 18 | S. B. 34 M | 1906 Mar. 1 | P. W. H. | — | Right tubal pregnancy | S. S. |
| 19 | A. W 33 M | June 6 | C. H. W. | Dr. F. C. Kempster | Left tubal pregnancy, ruptured : severe hæmorrhage | — |
| 20 | S. P. 32 M | June 18 | P. | Dr. Aberdeen Jones | Right ovarian pregnancy | — |
| 21 | L. F. 33 M | July 29 | Do. | Dr. G. Bower | Left tubal pregnancy, ruptured at 5 weeks : severe hæmorrhage | — |
| 22 | E. H. 24 M | 1907 Feb. 21 | P. W. H. | — | Right tubal pregnancy | — |
| 23 | M. S. 39 M | June 17 | C. H. W. | Dr. J. D. Windle | Right tubal pregnancy. Left salpingitis. Right appendages and left tube removed | S. S. |
| 24 | M. M. 23 M | Dec. 14 | P. H. W. | Dr. G. P. Chappel | Right tubal pregnancy—missed tubal abortion | — |
| 25 | E. S. 36 M | 1908 Feb. 6 | Do. | Dr. G. Plaister | Left tubal pregnancy | — |
| 26 | M. C. 27 S | April 4 | P. | Dr. J. Simpson | Right tubal pregnancy | — |
| 27 | L. B. C 28 M | July 2 | P. W. H. | Dr. H. Burland | Left tubal pregnancy | — |
| 28 | C. B. 33 M | Sept. 17 | Do. | — | Left tubal pregnancy : missed abortion : large peritubal hæmatocele | — |
| 29 | E. B. 25 M | Oct. 14 | Do. | Dr. J. Shaw | Right tubal pregnancy : tubal abortion. Appendix adherent | S. S. |

| Wound. | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | "As well as ever" | Uterus and right appendages normal | — | Mar. 17, 1908 |
| S. S. | Good: "feling quite well" | To right of the uterus is a large tense cystic swelling | Menstruation has been absent for nearly a year several times Operation for right tubal pregnancy, July 15 1909 | June 29, 1909 |
| S. S. | Perfectly well until six months ago: for 7 weeks constant loss | Uterus normal. To the left and behind is a firm doughy swelling | Operation for left tubal pregnancy with intraperitoneal hæmorrhage, Jan. 10 1910 | Dec. 8, 1909 |
| S. S. | Poor: cannot eat: worse than before | Uterus and left appendages normal | — | Sept. 28, 1907 |
| — | Very good: "better than I have felt for years" | Uterus and right appendages normal | Operation for right tubal pregnancy, Dec. 7 1908 | June 7, 1907 |
| — | Very good; but not quite so strong as before | Uterus and left appendages normal | Normal confinement of a girl, July 9 1908 | May 13, 1909 |
| — | "Fairly good" | Not seen | Normal confinement of a girl, Oct. 1908 | June 12, 1909 |
| — | "Poor; but better than before" | Uterus and left appendages normal | Miscarriage at 3 months in Dec. 1907. Now 7 months pregnant (May 1909) | April 30, 1908 |
| S. S. | Good, but easily tired: better than before | Uterus small: left ovary normal | — | June 22, 1909 |
| — | "Very good: better than before" | Uterus and left appendages normal | — | June 4, 1909 |
| — | Very good, but easily tired | Uterus and right appendages normal | — | Feb. 15, 1909 |
| — | Very good: cycled 25 miles on June 9 1908 | Uterus size of 2½ months pregnancy: left appendages normal | Now 2½ months pregnant. Confinement of a still-born girl, Nov. 1909 | May 8, 1909 |
| — | "Pretty fair: better in a good many ways" | Uterus and right appendages normal | — | May 27. 1909 |
| — | Has bad chest: not quite so strong as before | Uterus and right appendages normal | — | May 24, 1909 |
| S. S. | Very good till the confinement: weak lately | Uterus and left appendages normal | Normal confinement of a boy on Sept. 9, 1909 | Dec, 21, 1909 |

| Serial No. | Initials. Age. C.S. | Date. | Place. | Doctor. | Operation Notes. | Wound. |
|---|---|---|---|---|---|---|
| 30 | M. B. 35 M | Dec. 3 | Do. | Dr. Rachel McKenzie | Left tubal pregnancy | — |
| 31 | K. B. 21 M | Dec. 7 | C. H. W. | Dr. E. C. Curtis | Right ovarian cyst and tubal pregnancy | S. S. |
| 32 | M. E. 25 M | Dec. 18 | P. W. H. | Dr. R. B. Marjoribanks | Right tubal pregnancy : left salpingitis, with occlusion | S. S, |
| 33 | S. M. 30 M | 1909 Jan. 28 | Do. | Dr. F C. Wood | Right tubal pregnancy and hæmorrhagic cyst | S. S. |
| 34 | E. O. 30 M | Feb. 25 | Do, | Dr. W. J. S. Ewan | Left tubal pregnancy (about 4 months) : sac densely adherent in utero-vesical pouch | S. A. |
| 35 | E. M. C. 32 M | Mar. 27 | P. | Dr. Slater Jones | Left tubal abortion (mole retained) : large peritubal hæmatocele | — |
| 36 | E. C. 29 M | May 13 | P. W. H. | Dr. Marjoribanks | Left tubal abortion and peritubal hæmatocele : cyst size of plum in right ovary | — |
| 37 | M. M. 30 M | May 17 | C. H. W. | — | Left tubal pregnancy : abortion and peritubal hæmatocele | — |

The following cases are from Division U, only the condition of the appendages is here noted,

| | | | | | | |
|---|---|---|---|---|---|---|
| 38 | H. F. 34 M | 1904 Dec. 1 | P. W. H. | Dr. H. Lloyd Patch | Left tubal pregnancy | S. A. |
| 39 | D. C. 27 M | 1909 Feb. 11 | Do. | Dr. C. Gurney Thompson | Left tubal abortion : tube alone removed | — |

| Wound. | General Health. | Local Conditions. | Remarks. | Date. |
|---|---|---|---|---|
| — | "Good: nothing to complain of till 2 weeks ago: then pain and loss" | Uterus normal: apparently right tubal pregnancy: doughy swelling in pouch of Douglas | Operation for right tubal pregnancy, Dec. 2 1909 | Nov. 30, 1909 |
| S. S. | Very good: better than before | Uterus and left ovary normal | — | Mar. 16, 1909 |
| S. S. | Very good: better than before | Uterus and right ovary normal | — | Nov. 26, 1909 |
| S. S. | Very good: better than before | Uterus and left ovary normal | | Nov. 24, 1909 |
| S. A. | Good except for "nerves and neuralgia": rather better | Uterus and right ovary normal | — | Nov. 22, 1909 |
| — | Very good: better than before | Uterus and right ovary normal | — | Dec. 28, 1909 |
| — | Moderate: not strong: feels weaker than before | Uterus and right ovary normal | — | Jan. 10, 1910 |
| — | Poor, because of weakness and anorexia | Uterus and right ovary normal | — | Dec. 28, 1909 |
| S. A. | "Fairly good: rather weak in the chest: better" | Right ovary normal | — | Mar. 19, 1908 |
| — | "Very good till last few weeks" | Uterus size of six weeks pregnancy: ovaries normal | Pregnancy, 6 weeks | Nov. 2, 1909 |

## Intramural Cysts of the Uterus.

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The study of cysts of the uterus is complicated on account of their great variety, and their etiology, which is often unknown, but perhaps chiefly, because they are not of frequcnt enough occurrence to allow any single individual to collect and study a sufficient number of cases to form a personal conclusion on the various points.

In this work I have intentionally restricted the field. I shall confine myself entirely to cysts formed in the muscular wall of the uterus, and lined by epithelium. I shall not discuss subperitoneal cysts, or cysts in the mucous membrane, or cystic fibromata or adenomyomata, subjects which have been widely studied, and on which much has been written. I have found a number of recorded cases which seemed at first sight to belong to my subject, but on closer study I found they were cases of cystic degeneration—such was the interpretation of the case reported by Loebl. Further, I shall not consider cases as interesting as "the ureter opening into a utero-vaginal cyst of the Wolffian canal" (Robert Meyer) as it is not, strictly speaking, a cyst of the uterus. In doing this work I think I am rendering some service as, to my knowledge, it has not yet been done. Authors have treated true cysts of the uterus with fibromyomata, adenomyomata or cases of simple aberrant epithelium. I have been fortunate enough personally to examine two cases, and to obtain notes of a third case.

Case I occurred under the care of Prof. Beuttner, and for Cases II and III I am indebted to Dr. Huguenin. I heartily thank Prof. Beuttner for the warm welcome which he gave me to his hospital and for all the facilities for study which he placed at my disposal, and Dr. Huguenin for his kindly counsel in the laboratory.

Case I. (*a*) *Clinical History.*

Narcisse Gavairon, age 47. Cook. Admitted, August 25, 1909, to La Maternité, Geneva, under the care of Professor Oscar Beuttner. The family history revealed nothing of special interest.

Menstruation began at the age of 12 years, lasting 8—10 days, every 15 days, very abundant and with much pain in the lower

abdomen. The last period lasted from August 1 to 10, and again on August 20 continued to the time of admission on August 25. Leucorrhœa, abundant, yellowish-white. One confinement in 1883. Breech presentation; child still-born. No other pregnancy. No history or signs of gonorrhœa. The patient has suffered from pain in the lower abdomen since her confinement in 1883. Two years ago the patient was operated upon for pelvic abscess. Stools always offensive, and the patient had noticed pus in them.

The present illness began on July 28 with severe pains like those of labour. The patient was seen by two doctors who diagnosed pelvic abscess. There was no fever; the patient was treated by poultices and injections.

Gynæcological examination, August 25, 1909. The abdomen is distended; not painful on pressure. Palpation shews a tumour rising four finger-breadths above the pubes. P.V. The vulva and vagina are those of a multipara. The cervix is directed to the front and left, it is conical and has a transverse tear. The tumour is the size of a man's head, smooth and elastic, slightly painful on pressure, and somewhat pear-shaped. The fundus is round and has hard outgrowths which are prolonged to the pelvic walls.

Operation. Median incision from the symphysis to the umbilicus. On opening the abdomen the uterus was seen enlarged. Some small subserous fibroids were present in the wall. On the left side the appendages were adherent and formed a mass. The uterus was divided in the middle line and a little pus welled up from below. The two halves of the uterus were drawn upon by forceps. The left half was removed and in the process a cyst was perforated and its sanguineous contents escaped. The broad and round ligaments were divided between clamps. After hemisection the uterine artery was clamped with Faure's forceps. The right half of the uterus was removed without piercing the cyst. After suturing the stump of the uterus with three separate catgut sutures, it was covered by peritoneum. The uterine artery was ligatured. The appendix was seen short and thin. The abdomen was then closed.

(*b*) *Pathological Specimen.* (*1*) *General View.*

Hemisection and subtotal extirpation of the uterus. The section passes obliquely from above down and left to right, and does not reach the cervix. The cut surface of the *left* half measures 5 cm. from left to right, 8·3cm. from above down and is 6·25 cm. thick. The knife passed through three fibromyomata in the uterine substance, and there is another subserous myoma on the posterior surface. The

left appendages are matted together and with the uterus. It is difficult to find the ovary.

The *right* half of the uterus measures from left to right 3·75 cm., from above down 5·8 cm., and is 6·25 cm. thick. On the cut surface are 8 fibromyomata varying in diameter from 1·25 mm. to 2·7 cm. They are spherical in form and easily shelled out. The right appendages are bound together by lamellæ of fibrous tissue which also unite them to the uterus. The right ovary measures 1·7 × 1·5 × 5 cm. The section shews numerous corpora albicantia and cysts with colourless contents. The right Fallopian tube is curved with the abdominal end firmly adherent to the uterine pole of the ovary. The tube is twisted on itself and has the form of a retort. The retort is the size of a fist and is filled with pus.

(*2*) *Macroscopical View of Section of the Cervix.* See Fig. I.

The section is taken from a piece excised 1 cm. below the surface cut in the operation, and is embedded in paraffin and coloured with hæmatoxylin eosin.

The preparation shews half a transverse section. The lumen of the cervical canal is a rent about 4 mm. long and 1 mm. broad at its widest part. The first point which strikes the naked eye is that the cervical canal is surrounded on all sides by cysts occupying about $\frac{1}{3}$ of the section, and on the left hand upper corner is a large cyst 10 × 6 mm. in diameter. The smaller cysts vary in diameter from less than 1 mm. to about 3·25 mm.

(*3*) *Microscopic View.*

The magnifying glass shews their shape to be spherical or slightly oval; irregular forms such as stellate or hour-glass are rare. This enlargement of 8 diameters also shews some cysts which escaped the naked eye. The contents of the cysts are also shewn as a more or less homogeneous mass with in some cases a concentric formation (see Fig. II). In some are apparently droplets of clear mucin. In some of the cysts the contents stain most readily with hæmatoxylin, in others with eosin. Even with this slight enlargement the greater number of the cysts are seen to be embedded in the muscular tissue. In places the latter seems prolonged into the mucous membrane so that the limit between them is not well defined; the depth of the mucous membrane is about 1·5 mm.

The *low power* seems to shew that the external surface of the section corresponds with that of the uterus. The cysts furthest from the cervical canal do not reach the parametrium, they are always

CASE I.

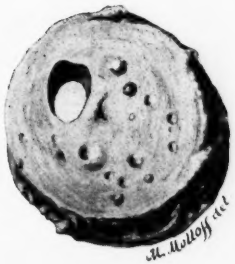

FIG. 1.

FIG. 2.

FIG. 3.

separated from it by a band of muscular tissue, sometimes only ·2 mm. thick. The muscle bundles are arranged in various directions. The connective tissue is moderately developed. The blood-vessels are average in number and their walls are not thickened.

*High Power.* The surface epithelium of the mucous membrane is wanting in many places, but where it persists it consists of a single layer of cylindrical epithelium, non-ciliated. The glands are moderate in number and often ramified, and are lined by a single layer of cylindrical epithelium with secretory products accumulated at the end nearest the lumen; the majority of these cells have a darkly stained nucleus at their base; the nuclei are round or oval. There are some cells in which the nucleus is pale and situated in the middle of the cell. The lumen of the gland is either empty, or sometimes contains a substance homogeneously filamentous. The stroma is slightly sclerosed. Under the *oil immersion* the nuclei are seen to be generally irregular; some fragments of nuclei are also seen resembling grains stained deep blue like the entire nuclei. Very occasionally there are some polynuclear leucocytes. The cysts under the high power (Fig. III) are seen lined by a single layer of cylindrical epithelium with a deeply stained nucleus at the extreme base of the cell. The extremity of the cell nearest the lumen often containing hyaline droplets. The height of the cell is variable, that of the shortest is about 1½ times their breadth. The longest cells are about three times as long as they are broad. The protoplasm is generally faintly coloured. In some places there are small diverticula, in which at first sight the epithelium appears to be of more than one layer, but that this is not the case is seen on using the micrometric rule which shews that they are in different planes, indicating that they are the nuclei of cells lining a curved cavity. The contents of the spaces often consist of a substance in concentric layers with almost always desquamated cells and sometimes mono- and polynuclear leucocytes. The abundance of cellular elements in the cysts varies, sometimes rich sometimes poor. The high power shews that it is not possible to distinguish the protoplasm and nuclei in these desquamated cells, and it is not easy in all cases to recognize their nature.

In the muscular tissue some spherical masses of epithelium are seen which are not dilated into cysts; these are formed in irregular shape, but always lined by a single layer of cylindrical epithelium. The connective and muscular tissue contain some polynuclear leucocytes.

*Resumé of Case I*:—Uterus removed from a patient aged 47 by hemisection on account of disease of the appendages and fibromyomata of the uterus. A section taken from a piece excised 1 cm. below the surface cut in the operation shewed a cyst 10 × 6 mm. near the left hand upper border of the cervix. Under the microscope the muscular tissue surrounding the cervical canal was seen to be occupied by cysts covering about $\frac{1}{3}$ of the section and varying from 1 mm. to 3·5 mm. in diameter.

Case II. (*a*) *Clinical History.*

A woman, aged 45 years, suffering from frequent, profuse and painful hæmorrhage. The first examination shewed an enlarged uterus. The first curetting gave relief which only lasted a few weeks. A second and a third curetting had no more favourable result. As the patient became feeble and very thin, it was decided to remove the uterus.

*Operation.* Removal of uterus and appendages.

(*b*) *Pathological Specimen.* (*1*) *Macroscopical description.*

The ovaries shewed many cysts with serous and hæmorrhagic contents. The uterus was voluminous, its cavity narrow, the walls varied in thickness from $2\frac{1}{2}$ to 3 cm. The fascicular structure was marked. Some vessels were visible to the naked eye. At about the level of the internal os uteri on the left side there was a small cavity. The centre of the cavity was about 3 mm. from the uterine mucous membrane. The cyst was only recognized after the specimen was fixed in formalin, and it is only possible to note that the contents appeared as a coagulum. Between the muscular tissue and the cavity there was a little white transparent tissue.

(*2*) *Microscopic Description.* Object: E. Zeiss. Oc. ii.

Section through the upper half of the cervix. Stained with hæmatoxylin eosin. A cyst about 4 mm. in diameter (see Fig. IV) is visible to the naked eye, situated near the mucous membrane. The microscope shews that between the cavity of the cyst and the muscular tissue there is an intermediate zone of a structure similar to that of the mucous membrane of the cervical canal in the same section. In fact there are glands here situated in a bed of cytogenous tissue (Recklinghausen), a tissue essentially constituted of cells whose nucleus, round or oval on section, is alone visible. Connective tissue fibres are excessively rare. The cavity of the cyst is lined by a single layer of non-ciliated cylindrical epithelium. This epithelial lining is not everywhere well preserved—in some places it is quite

CASE II.

FIG. 4.

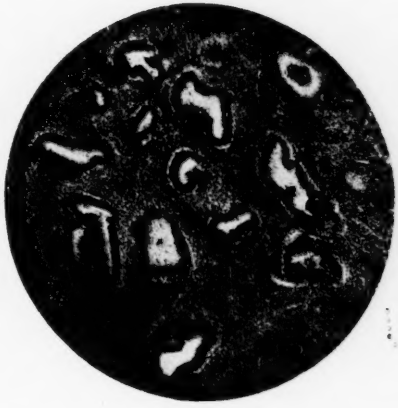

FIG. 5.

destroyed, in others it is in process of necrosis. Surrounding the principal cavity there are some canaliculi also lined with cylindrical epithelium (see Fig. V). In the section the canaliculi appear as rents, of which the lumen is about the same size as the height of the cylindrical epithelium; other large canaliculi are more important and have a diameter about 5 times as large as the height of the epithelium. The shape of these canaliculi is simple, sometimes ramified, sometimes containing a papilla-like projection. The line of demarcation between the cytogenous tissue and the smooth muscular tissue is very irregular. Between the cyst and the mucous membrane of the cervical canal are some glandular canaliculi which approach very close to the cyst. The epithelium of these aberrant cysts is directly in contact with the smooth muscular tissue; I was not able to demonstrate their continuity with the wall of the cyst. The uterine muscular tissue shews nothing of special interest. The connective tissue does not as a rule occupy more space than is normal. There is no infiltration of leucocytes. The cervical mucous membrane shews traces of old hæmorrhage. The glands are tortuous, otherwise there is nothing particular to note.

*Resumé of Case II*:—Uterus removed from a patient aged 45 on account of hæmorrhage which was not relieved by three successive curettings. At about the level of the junction of the body and cervix there was a small cavity visible to the naked eye. The centre of the cavity was about 3 mm. from the cervical mucous membrane. The microscope shewed that the wall of the cyst was formed of a structure almost identical with that of the cervical mucous membrane. There were no signs of inflammatory changes or cicatrization.

Case III.

A fibromatous uterus removed on account of hæmorrhage. Near the internal os uteri on the left side was a cyst about $1\frac{1}{2}$ cm. in diameter. It was spherical in shape and situated about equidistant from the mucous membrane and parametrium. The walls were smooth and traversed by numerous vessels. The contents were serous. Unfortunately the specimen was lost and no microscopic examination could be made. The size of the cyst seems a link between the very small cysts usually met with in pathological specimens, and those which by their volume attract clinical attention. The absence of any inflammatory changes visible to the naked eye is rather in favour of a congenital origin, as also its situation near the internal os uteri.

## Cases Collected from Publications.

### Salva Mercadé. Cysts near the Interstitial portion of the tube.

*Observation I.* A. T., aged 40, admitted into La Pitié under the care of Professor Terrier, March 9, 1904, for menorrhagia and pain in the hypogastrium.

Menstruation began at 16, always normal, painless, lasting 4 days. Married at 17; first child at 18. Confinement and lying-in normal. At 30 years again a normal confinement, but the child died in 6 days. From this time the periods were normal but accompanied with slight pain and white discharge. No miscarriages. In May, 1902, A. T. began to feel pain in the right iliac fossa radiating down the thigh, especially after a long walk. The menses began 4 or 5 days earlier; they were preceded by a sensation of weight and dragging in the lower abdomen, especially on the right side. These pains persisted during the first days of menstruation. About the same time micturition became scanty, painful and frequent. This condition continued for about 6 weeks, when suddenly the pains became more intense. Fever began accompanied by obstinate constipation and complete retention of urine. Dr. B., who was now consulted, diagnosed pelvic peritonitis. The symptoms continued serious for about 8 days, when they began gradually to mend. Seven weeks later the patient got up. Menstruation became normal again, but the patient always suffered during this time from slight pain in the lower abdomen, especially on the right side, with radiation into the groin, down the thigh and sometimes into the lumbar region. Between the periods the above symptoms, with the exception of fatigue and troubles of micturition, disappeared. Four months ago, December, 1903, after fatigue, the pains appeared afresh, very intense and without respite. Their localisation was always the same. They were dull, continuous, with frequent paroxysms, especially at the time of menstruation, which was accompanied by blackish clots. There was no white discharge. From time to time the habitual troubles of micturition gave place to complete retention of urine.

*Condition on Admission.* Abdominal palpation gave rise to slight pain in the iliac fossa, especially the left, but nothing was felt. Vaginal examination shewed the uterus normal. In the left cul-de-sac a mass was felt the size of a mandarin, very mobile, slightly painful, separated by a distinct groove from the uterus. In the right cul-de-sac a diffuse mass was felt, probably the appendages with chronic inflammatory changes.

*Diagnosis.* Double hydrosalpinx.

*Operation.* March 12, 1904, by Prof. Terrier, assisted by M. Gosset. Supra-vaginal hysterectomy, without drainage. Recovery; discharged 21 days later.

*Examination of Parts Removed.* Right ovary healthy. The right tube was distended in its outer $\frac{1}{3}$, forming a cyst the size of an orange, with thin walls shewing liquid translucent contents. Left ovary healthy. Left tube formed a large serous cyst in its outer extremity about double the size of the one on the right side. The uterus was of normal size and shewed at the level of the junction of the left tube with the fundus a cyst the size of a large pea projecting under the peritoneal covering. The cyst appeared to be directly under the peritoneum or at least covered only by a very thin membrane. Half the circumference of the cyst projected, the other half was entirely in the parenchyma of the uterus. The walls could be slightly depressed on pressure. The contents were a yellow liquid, like that contained in the cystic tubes. The histological examination of the

specimen by Lecène shewed: (1) Below at A the lumen of the tube divided in its interstitial portion and surrounded by muscular fibres. (2) All round the tube, scattered in the thickness of the uterine muscle are canaliculi formed by tiny tubes paved with ciliated cylindrical epithelium. (3) Above at K the lumen of the cyst is lined by a cylindrical epithelium, ciliated in some parts. A papilla projects from the interior of the cyst covered by the same epithelium. This portion is represented separately on Fig. 8. It appears that the cyst is formed by the cystic dilatation of one of these adjacent tubal cysts.

*Observation II.* Marie C., aged 42, admitted April 20, 1904, into La Pitié under the care of Prof. Terrier for pain in the abdomen for two months.

Personal history reveals nothing particular. Menstruation always normal, slight, not painful, lasting 5 to 6 days. At 18 years a normal confinement. General health always good. No miscarriages. No white discharge. Nothing abnormal on the part of the bladder, rectum or digestive tract. For last two months patient has felt pain in the lower abdomen without precise localisation radiating particularly down the right thigh. About the same time patient noticed that her abdomen increased in size and she felt a tumour. Inspection shewed a large abdomen, but the walls were fat. No collateral circulation.

*Vaginal Examination.* Cervix atrophied, inclined to the left. The fundus is deviated to the right of the median line, three fingers above the pubes and moveable. On the left of the uterus, distinctly separated from it, is a globular, mobile mass, its upper limit reaching the umbilicus. On the right is a small tumour, not painful, moveable.

*Diagnosis.* Double cysts of the broad ligament.

*Operation.* April 27, 1904, by Prof. Terrier, aided by M. Gosset. Median laparotomy. On the left a cyst of the broad ligament, size of two fists, pushing the uterus to the right. Uterus slightly enlarged. Section of broad ligament close to the uterus. Section of round ligament. Attempt made to enucleate the cyst, but owing to its size and adhesions it was punctured; 400 grms. of sero-sanguineous liquid withdrawn. The utero-ovarian ligament was sought for and found in the iliac meso-colon. Supra-vaginal amputation of the uterus from left to right (American method). Enucleation from below upwards of the right appendages. Stump cauterized and rendered extra-peritoneal. Ligature of the vascular pedicles with silk. Appendicectomy, the appendix appearing large, long and inflamed. Peritoneum and aponeurosis sutured with catgut. Horse-hair for the skin. Drainage; healed in 21 days.

*Examination of Specimen.* On the left an intra-ligamentary cyst the size of two fists. On the right a smaller cyst. The contents of the cysts were sero-sanguineous. The uterus was slightly enlarged, shewing at the level of the left cornu a small cyst about the size of a pea projecting under the peritoneum. The appearance of this cyst was similar to the intra-ligamentous cyst and its contents were also sero-sanguineous. The structure was in all points similar to that of the preceding case. The section shews: (1) The tube in its interstitial portion. (2) Epithelial débris scattered in large quantities in the uterine muscle and lined on the inner surface with ciliated cylindrical epithelium. At K these débris already form true cysts. (3) The cyst which projected under the peritoneum was also clothed with cylindrical epithelium, ciliated at some points and shewing slight projec-

tions of the wall, better shewn under a high power. To sum up, the same process seems to be present here, viz., cystic dilatation of one of the adjacent tubal groups of epithelial débris of which the cysts K' seem to be an intermediate stage.

### Huguier. Serous Interstitial Cyst developed in the thickness of the posterior wall of the body of the Uterus.

Woman, aged 66. Died from cancer of the left breast. Married at 26. 9 months later two still-born children. 5 years later a child thriving.

*Post Mortem.* In the thickness of the posterior wall of the uterus a tumour the size of a large orange is found. Commencing below in the posterior part of the cervix and ascending the whole length of the posterior surface of the body and 6 cm. above it. It is 10 cm. high, 9 cm. broad, and 7 cm. thick. It is pinkish-white and opaque in all its extent except at its upper extremity where its thin walls are transparent. The thickness of the wall varies very much according to the parts examined. It is composed of 4 layers from without in (1) the peritoneum, (2) the proper tissue of the uterus, (3) a cellular fibrous membrane adhering feebly to the proper structure of the uterus, but which is united very intimately to (4) the true or internal tunic of the cyst. The latter is smooth, shining and has not the slightest inequality on its inner surface. It contained a mobile fluid like water, very clear, citron coloured, non-viscous to the touch. The cyst formed so much a part of the uterus that it was thought to be a case of hydrometra. The cavity of the uterus was found at the lower and anterior surface.

### Stufler. Rare Cyst of the Uterus extirpated by Laparatomy.

Patient aged 43 years. Married. No profession; entered *June 1, 1903*, the Gynecological Institute, Modena. No hereditary or personal antecedents.

First menstruated at 13 years; always normal; lasted 7–8 days; never leucorrhœa. Married at 25 years, 9 pregnancies, 7 normal, but the 3rd and the 7th interrupted at the 3rd month with abundant loss. Last confinement July 23, 1901. In the beginning of 1903 the patient had some metrorrhagia which ceased under appropriate treatment. *Since April, 1903*, she had recognized the presence in the right iliac fossa of a round tumour, mobile, sensitive to pressure, as large as a fist, and which has increased in size since the patient entered the hospital. At present the abdomen bulges in the region of the right iliac fossa. On palpation the tumour is not very resistant and formed of bosses which are as irregular in their consistence as in their volume, some elastic and more or less resistant and some of a fibrous consistence. The tumour reaches the iliac spine on the right side, and as far as two finger-breadths from the left iliac spine. Above it reaches as high as the umbilicus. Per vaginam, uterus retro- and left sinistro-version. Sensitive to the touch at the level of the front part of the uterus. The internal examination combined with palpation shews that the tumour is inserted at the right corner of the uterus, to which it is attached by a hard cord.

*Diagnosis.* Cystic tumour of the right appendages, perhaps cyst of the ovary. Patient left the hospital June 10, but returned the 18 of January, 1904. General condition unaltered. Periods normal, a few days too soon. Some vague pains in the hypogastrium. The tumour has increased in size

and there is some ascites. In addition a new tumour is noticed on the left side of the uterus, smooth, elastic, almost fluctuating, which seems to be an enlarged "bosselure" of the primitive cyst or a new tumour developed on the left of the uterus.

*Operation.* March 9, 1904. On opening the abdominal cavity, a large multilocular cystic tumour is found, without adhesions and attached to the anterior surface of the uterus by a short thick cord which is inserted directly into the anterior surface of the uterus at a short distance from the fundus and 1½ cm. from the left border through a distance of 3½ cm. in the longitudinal direction and 1½ cm. in the transverse. Section of the pedicle. A continuation as a cul-de-sac into the myometrium, to which it is very adherent, is then noticed. It is resected, and the uterine wound is closed as after a myomectomy. The left ovary, which is sown with small cysts, is removed. The right ovary is sclerosed. Closure of the peritoneum and of the muscular aponeurotic layer by catgut. Suture of the wound by separate stitches. The patient is discharged healed April 4, 1904. Weight of the tumour 2·770 grms. It is formed of several cystic bosses, of which the largest measures 12 cm. in diameter. Around this last 15 tumours are counted, the diameter varying from 3—10 cm. Further, arising here and there from the external surface of the large cyst, or from spaces which separate the different cysts, or from secondary bosses, small cysts the size of a grain of millet are observed. The external wall of these cysts is smooth, elastic, very transparent, with a very fine vascular network. The interstices between the different bosses are formed of loose cellular tissue threaded by dilated vessels; they are very deep. No trace of a moveable layer of peritoneum is found on the surface of the tumour. On opening, the interior surface of these cysts appeared smooth. The liquid is a very transparent, colourless fluid, sp.gr. 1004. Reaction alkaline. Slight precipitate on heating. Does not contain sugar.

*Microscopic Examination.* The point of implantation of the pedicle is shewn as a connective tissue, fairly dense and fairly rich in nuclear elements, in direct continuation with muscular layer of the uterus. The wall of the cyst is formed of two layers quite distinct from one another. The external is formed of an undulated connective tissue poor in cellular elements. The internal is formed of loose connective tissue rich in connective tissue cells and in muscular tissue. The *epithelial layer*, which is wanting in places, is formed of *cylindrical cells* arranged in one or more layers with a tendency in places to proliferation. This epithelium, examined in situ, is shewn deprived of cilia.

## Candelet. Interstitial Cyst of the Uterus resembling an Ovarian Cyst, and removed as such.

M. Candelet communicated the following observation. The woman, aged 43 years, was admitted under the care of M. Demarquay for an abdominal tumour, first observed two years previously. Until that date the general health had been good and the periods regular, when she noticed a tumour developing in the left iliac fossa. The tumour grew and reached beyond the median line and 8 cm. above the umbilicus. It was smooth, had no bosses and no adhesions. M. Demarquay diagnosed an ovarian cyst and made an exploratory puncture which gave 5 litres of a lemon-yellow liquid, perfectly limpid. This confirmed the diagnosis, and as the general condition of the woman was excellent it was decided to perform ovariotomy. The operation was painful and laborious and lasted 2½ hours.

The surgeon recognized after opening the abdomen that the tumour sprang from the uterus and not from the ovary. Nevertheless the cyst was emptied and drawn outside. The ecraseur was applied to the pedicle at the fundus of the uterus and after section the peritoneum was sutured. Patient died 36 hours later. Examination of the specimen after the operation, and of the uterus at the autopsy, shewed that it was a cystic pouch developed in the thickness of the uterine wall, in the middle of the muscular fibres. The walls of the cyst were formed by the muscular fibres of the "Vie organique," of which some shewed the modification caused by pregnancy. Nowhere was mucous tissue found. The uterus, which was relatively slightly developed, was only 15 cm. long, and shewed on its surface *other little cysts of the same nature and in process of formation*. They were small and filled with blood. They could be seen shining through like bluish spots.

### Rosenthal. Cystis intramuralis uteri e canali Gärtneri. Endometritis polyposa.

B. P., aged 20 years. Married 4 years. Menstruated first time at 13 years of age, every 4 weeks, lasting 5 to 6 days. First year of marriage 1 child. Two years ago one miscarriage.

One year ago the patient felt a tumour in the lower part of the abdomen which grew slowly. Five months ago she consulted a doctor who diagnosed pregnancy at 8 months. As the confinement did not take place, she entered hospital October 9, 1899. The patient is well developed, not stout. Constipated. Heart and lungs sound. Abdomen has all the dimensions of a nine months' pregnancy. An elastic tumour reaching two fingers breadth below the sternum.

*Diagnosis.* Cyst of right ovary; intraligamentous.

*Operation.* November 13, 1899. Laparotomy. The right wall of the cyst loses itself in the pelvis and is intimately adherent to the posterior surface and the right wall of the uterus. The tumour was only partially extirpated, on account of the adhesions. The patient died 34 hours after the operation.

*Post Mortem.* The wall of the cyst was thick. The *internal surface* was smooth, covered with *cylindrical epithelium*, non-ciliated. The wall is entirely formed of connective tissue. On the left side the tube is normal, the ovary is cystic, the size of a prune. The left half of the uterus is of normal size. The transverse diameter of the uterus is enlarged and adherent to the wall of the cyst, of which a part still remained attached after the operation. The wall of the cyst is much spread out. The cyst seems formed at the expense of the canal of Gärtner. The uterine mucous membrane showed polypoid endometritis.

*Anatomical Diagnosis.* Intramural cyst of the uterus arising from the canal of Gärtner.

### Peán. Interstitial Cyst of the wall of the Uterus.

Woman, age 27. Menstruated at 15 years. Always very irregular. Married at 18 years. No children.

History 3 years. Volume of tumour very variable, seems influenced by the monthly periods. No puncture. The abdomen is about the size it would have been at full term of a normal pregnancy. The tumour is globular, not nodulated, smooth, distinctly fluctuating, and forming part

of the uterus. The cervix is found high. Short incision. A tumour of reddish-brown colour appeared. No anterior adhesions. No ascites. Puncture. 13 litres of serous liquid. The sac being emptied, the walls retracted more markedly than is the case with ovarian cysts. Its origin is seen to be direct from the uterus and that it is an interstitial cyst developed in the posterior wall. The wall was ligatured below the cavity and on tying the ligatures tightly a sort of pedicle was formed. This was brought between the lips of the wound at the inferior angle where it was fixed with the corresponding portion of the uterus. The rest of the abdomen was closed.

### Kessler. A Cyst of the Uterus.

The uterus and vagina of a widow over 50 years of age were removed in one piece (Olshausen's method) on account of cancer of the portio and several carcinomatous patches in the vagina. The cyst, *the size of a walnut*, lies in the anterior wall of the uterus. Macroscopically the cavity seems fairly smooth. Here and there are coagulum and débris. Up to the present *no lining epithelium has been found*—rather the inner surface seems formed of the muscular structure in process of complete disintegration. The muscle bundles and threads which lie nearest the lumen seem broken off and loosened from the more normal or less concentrically arranged layer which border it. In some cases entirely loose they are lying free and without order in a bed of celloidin. Towards the uterine cavity, the cyst is hidden by the atrophied mucous membrane and a muscular layer 4 mm. thick, whereas towards the perimetrium the wall in its thinnest part is only 1–2 mm. thick. It is not impossible therefore that by continual destruction of the wall at this spot eventually an opening into the peritoneal cavity might have followed. I regret I can give no information as to the contents of the cyst. Before the operation it was taken to be a soft interstitial myoma explaining the cause of the thickening of the uterus. An assistant later made an incision into the supposed tumour and allowed the contents to escape without noticing their character.

### Pénard. Interstitial Cyst.

Patient age 36. Died of phthisis. Had never menstruated. Slight migraine only each month.

*Uterus.* A fibrous tumour ·01 cm. diameter on the upper and middle part of the uterus. The anterior surface of the uterus appears swollen and a little injected. On the left are a large number of small yellowish cysts, hydatiform, independent of each other, and fixed to the tissue of the uterus itself. *On the right only one is seen, which seems completely lodged in the thickness of the organ.*

### Recklinghausen (Case XVI. P 61). Atheromatous Cyst in Cervix.

". . . No myoma or cysts are found in the substance of the corpus uteri. But in the *cervix* are *tiny mucous membrane cysts*, and in the *left wall a round atheromatous cyst 5 mm. diameter filled with desquamated squamous cells*, and situated *1 mm. outside the mucous membrane*. Further off on both sides is a longitudinal fibrous strand, scythe shaped on section, but with no trace of a Gärtner's canal."

**Gustav Klein. Cyst of the right Wolffian Canal.**

At the autopsy of a full term still-born fœtus apparently well developed, a considerable thickening of the whole of the right side of the uterus was found in the form of a tumour. The swelling was not definable from the body of the uterus but was situated in the substance of the uterus itself and covered like the latter with peritoneum. The fundus was saddle shaped. The ovaries and tubes appeared normal. Hardened in alcohol the specimen shewed that there were two uteri and two vaginæ, separated by a fine, complete septum. In the right wall of the uterus, by the side of the two completely separate uterine cavities, was a third canal commencing ·5 cm. below the fundus and extending 1·3 cm. below the external uterine orifice. The cavity of the right uterus was 3·9 cm. long (measured in a straight line) and the third canal 4·7 cm. long. The transverse diameter of the lumen of the left uterus measured ·6 cm., of the right ·7 cm., and of the third canal ·5 cm., in only one part ·75 cm.

The two uterine cavities, with the exception of the non-union, had the same appearance as that in the new-born. The portio was apparent and the cul-de-sac formed. The position of the internal orifice was noted by the termination of the cervical folds which were relatively more numerous than those of the mucous membrane of the body of the uterus. The latter only possessed a few. The vagina was largely deprived of them and showed a deep depression between its folds. The folds of the uterine mucosa were directed from above down, and it was the same with the cervix. The appearance of the third canal was completely different. Numerous ridges so projected into the lumen that they gave the appearance of little cavities communicating with each other, and on section appeared as partitions.

By comparison with the corresponding parts of the other half it was seen that they were only ridges and not partitions. The aspect of this sinuous cavity recalled that of the large intestine. The surface of the folds was perfectly smooth. There were no contents. This picture describes a sinuous canal situated in the lateral wall of the uterus, and according to the macroscopical description can only be explained as the canal of Wolff which has undergone a cystic dilatation through a great part of its extent. As it was situated in the muscular structure of the uterus it cannot belong to the ovary or to the parovarium. All idea of a vaginal origin must be laid aside. Vaginal cysts may occupy a considerable extent and may even reach as high as the cervix, but they cannot reach ½ cm. below the fundus of the uterus in the muscular tissue. On the other hand, topographically one can only attribute similar vaginal cysts to the canal of Wolff, for the vaginal glands are normally wanting and cannot be held responsible for cystic formations. On macroscopical examination not the least trace of the canal of Wolff was found either in the uterus or in the vagina. The sinuosities agree absolutely with those which Dohrn, Beigel, Rieder, etc., report on the natural form of the canals. In one case the upper part only for a length of 2 cm. was not sinuous but curved.

A section made in the region of the anterior half and 1 cm. below the fundus of the uterus, thus including the anterior half of the three cavities (two uteri and one cyst), offered the following study for the microscope. In the muscular tissue, where the differentiation between longitudinal and circular fibres was not well marked, there were three cavities, and in this region the cystic cavity is a little larger than the uterine cavities. The cyst is lined internally by a thin layer of connective tissue poor in nuclei.

This tissue is not well defined towards the lumen but is slightly frayed. It seems there has been a desquamation of tissue. There is no trace of epithelium. On the contrary, in certain parts of the connective tissue, there is a small quantity of detritus furnished with fine nuclei, in which one cannot demonstrate the presence of any element. Perhaps there had been an epithelium which was destroyed after death by maceration, as also a part of the sub-epithelial connective tissue (the autopsy only took place 12 hours after the birth of the fœtus, which died during the confinement). On the external surface next to the connective tissue is a layer of circular muscle fibres.

The uterine cavities are lined by a mucous membrane, furnished in parts only by a cylindrical epithelium of average height and still deprived of cilia. In several places this epithelium is wanting. The epithelium dips down more or less and forms little invaginations and thus shews the commencement of glandular formation. In places superficial glands with a dilated cul-de-sac are found. Invaginations of solid epithelium, as are found for example in the sudoriparous and mammary glands, are wanting. Only a few invaginations in the form of fossettes and tubes are found. In one case even the epithelial glands are deprived of cilia. The interglandular layer of round cells is not well developed.

To sum up, the microscopic examination has not the value of the macroscopic, in support of the view of a cyst developed from the canal of Wolff. Especially the demonstration of cylindrical epithelium is wanting. We have not been able to explain the cause of the persistence and cystic dilatation of the canal of Wolff. If there had been only one uterine cavity then this one might have corresponded to one of the canals of Müller, and the cyst to the other—this latter being developed only in a rudimentary form.

Heterotopia, or the presence of a structure in a situation where it is not normally present, is particularly common in the form of epithelial heterotopia in the female genital organs.

In the uterus epithelial heterotopia occurs in the form of: (1) Malignant growth, by metastasis or direct extension. (2) Benign tumours (Adenomyomata). (3) Canals. (4) Diverticula. (5) Cysts.

It may originate from: (1) The Wolffian body (Recklinghausen). (2) The canals of Gärtner (Rieder). (3) The remains of the union of the canals of Müller (Kossmann). (4) The epithelium of the normal mucous membrane (Chiari). (5) The endothelium of the peritoneum (R. Meyer). (6) From lymphatic canaliculi (Blount).

The origin may be congenital or acquired. The acquired cases may be the result of inflammation (R. Meyer), or accidental implantation, *e.g.*, traumatism (Risch), or the process of regeneration, *e.g.*, of the mucous membrane after pregnancy (Recklinghausen, in Supplement, p. 234).

These origins are all accepted, and each theory has its more or less exclusive partisans. Recklinghausen traces the greater number of his cases of adenomyomata to congenital origin. Robert Meyer,

on the other hand, is inclined to consider these cases of epithelial heterotopia as the result of inflammatory changes.

Chiari was among the first to recognize inflammatory changes as a cause of epithelial heterotopia. Since then many authors have studied the subject, and this form of origin of acquired heterotopia is now universally admitted, whereas it was only a few years ago that all cases of heterotopia were considered as congenital, unless they were the result of changes due to malignant new growth.

The accidental implantation of epithelial tissue in the uterus does not appear to have been observed. It has often been observed in the skin and in the vagina (Risch), and there is no reason why it should not be associated with the uterus. An active process, such as that of regeneration of the mucous membrane of the uterus after confinement, might also give rise to the presence of epithelial elements in the muscular tissue—a suggestion made by Recklinghausen in the supplement to his great study (p. 234).

There are many interesting points connected with the study of these cysts. To understand their pathological formation, it is essential to study the *wall*: its origin, its structure, the origin of the epithelial elements, the character of the contents, and what factors could give rise to the epithelial formation in the middle of the muscular tissue of the uterus. This point brings us naturally to the consideration of cysts in general. Aschoff has carefully studied this subject.

This author considers that cysts may originate from: (1) Absorption of tissue which has undergone necrosis. (2) From dilatation of pre-existing cavities. (3) From a neoplastic process in which the elements have the tendency to form closed cavities or spheres.

As stated before, cases cited in the literature as cysts of the uterine wall comprise a large number which are simply the result of liquid necrosis of an intra-mural myoma. This is an explanation obviously excluded in Cases I and II as the muscular elements have remained absolutely passive in the process.

The persistence of the canal of Gärtner has often been demonstrated. The important work of Recklinghausen contains several observations of this fact, as well as the special study of Rieder. But among the cases recorded, there are relatively few observations of cysts developed from the persistent canal, for it is uncertain whether those which I have gathered from the works of Recklinghausen and Rieder can be ranged in this category. The cases reported by Rosenthal and Klein are probably of this origin. The persistence of

the Wolffian body in the uterus is doubtful, and Robert Meyer, who is certainly the most reliable author on this subject, is inclined to admit that the Wolffian body leaves no trace in the muscular wall of the uterus. Whether the little cysts which I have examined can become large enough to attract clinical attention is very difficult to determine. The cases of Candelet and Pénard shew small cysts in process of formation. Case III seems a link between the smallest pathological cysts and large cysts like those of Rosenthal, Candelet and Péan. It is true that the histological examination of cases already published is often not complete enough to enable any definite statement to be made with regard to their probable origin. In some cases the epithelium may have been destroyed during the growth of the cyst, in others after death before examination of the specimen (Klein, Kessler), and again in other cases not expressly sought for—but in all probability these voluminous cysts were not due to simple softening of myomata, because the muscular tissue in their wall shewed no defined demarcation from the muscular structure of the uterus as is the case with a myoma.

In Case I, multiple cysts in the muscular tissue of the cervix, I am inclined to think that, as a result of the process of chronic inflammation, to which all the internal organs were subject, a proliferation of the glands of the mucous membrane took place into the muscular tissue, and that the glands became distended by the accumulation of the ordinary products of secretion. Indeed one cyst is situated close to the cervical canal and contains mucoid secretion. We know from the study of general pathology of inflammatory processes connected with glands (*e.g.*, in the breast, etc.), that the excretory products are often obstructed either by an accumulation of cellular elements in the lumen of the duct, or by stricture through the periglandular tissue. Unfortunately I was unable in this case to decide positively whether such a process had taken place as the sections were exceedingly difficult to obtain, and all attempts to construct a series of sections failed. But on macroscopic and microscopic examination I was able to be sure that the contents of a certain number of the cavities had undergone a colloid change, and were of a consistence which would certainly retard or even prevent the evacuation of the products of secretion. On comparing this specimen with one of retention cysts or "Ovula Nabothi" a distinct analogy in the pathological phenomena is seen, yet the quantitative difference is so great that it does not seem advisable to range the two processes under the same heading,

though some authors (*e.g.*, Kaufmann) do not differentiate between simple retention cysts known as "Ovula Nabothi" and a cavernous transformation of the portio by cysts.

In some of the cysts the wall shews a slight projection similar to that interpreted by Mercadé and Amann as "papilliform," but which is most probably caused by the section passing through a fold or curve of the entire cyst, a phenomenon familiar in curettings of the uterine mucosa.

Non-carcinomatous proliferation of epithelial elements of the uterine mucous membrane have been often described. Robert Meyer records a case which reached the broad ligament. In the collection of cysts there is no particular one which could suggest the canal of Gärtner. The concentric arrangement of muscular fibres round some of the cysts as shewn in Fig. III is a purely mechanical one.

In Case II the structure of the tissue immediately surrounding the cyst cannot be distinguished from the mucous membrane of the cervical canal in the same section. There is no trace of any inflammatory process past or present. The cyst is therefore probably of congenital origin; but to determine the nature of the congenital malformation is difficult.

The striking resemblance of the wall of the cyst to the cervical mucous membrane in its immediate neighbourhood suggests at once the probability of the inclusion of a portion of the mucous membrane in the muscular tissue during development. The glands of the uterine mucosa are very rudimentary during fœtal life, and do not develop until the age of 8—10 years; but there is no reason why they should not develop simultaneously in the portion of mucous membrane accidentally included in the muscular tissue, which possesses the same potential power of forming glands as the mucous membrane from which it originated. Probably the portion included in the muscular tissue was originally in direct connection with the cervical mucous membrane, as the glands of the two structures can now be traced to a very close proximity to each other, though it is not easy to explain how the communication was obliterated. There is no trace of any inflammatory process as before stated. The suggestion of the presence of a congenital diverticulum of the uterine mucosa is not without foundation. Bernstein describes a diverticulum in a case of uterus bicornis septus in Macacus Rhesus. Recklinghausen in Fig. I (*c*) of Case VI, p. 32, shews an adenomyoma the size of a walnut in the ventral wall of the uterus, the cavity of which communicates freely with the cavity of the uterus. The size of this diverticulum is in favour of a congenital rather than an

acquired origin. (In the same diagram (Cc) a small cyst is shewn in the posterior wall of the cervix. Its size (2 mm.?), situation in the muscular tissue, and the absence of any inflammatory changes described by the author, suggest also a congenital origin, other than Gärtner's canal, which is represented on either side of the cervix as a solid fibrous strand.)

On the other hand the position of the cyst in Case II near the internal os uteri, where the persistence of diverticula of Gärtner's canal is most often recognized (Maudach, Rieder), is in favour of an origin from that canal. Recklinghausen in Cases XI, p. 51, and XIX, p. 70, is uncertain whether to consider certain structures in the cervix as derivatives of Gärtner's canal, or the cervical mucous membrane. Yet I must emphasize the fact that neither above or below the cyst was any trace of epithelium or fibrous strand or differentiated muscle, which might suggest a canal of Gärtner.

In conclusion we may say:—

1. Intra-muscular cysts of the uterus do exist. That these cysts are found in all parts of the uterus—near the cornua, near the fundus, in the body, at the junction of the body and cervix, and in the cervix, or the left or right, in front or behind.

2. The volume of these cysts is usually so small that they are only found as objects of pathological interest at a post mortem, or in specimens removed by operation, but apparently they may reach a considerable size and attract clinical attention (*e.g.*, size of a nine months' pregnancy, Rosenthal).

3. The epithelium may be well defined, ciliated or non-ciliated columnar cells, or represented merely by a smooth internal lining, or not demonstrable at all (*e.g.*, Kessler, Klein). They may contain pavement epithelium (Recklinghausen).

4. These cysts may have a congenital origin. A sufficient number of cases with full examination have not yet been reported to confirm the many theories of possible origin under this heading. The origin from Gärtner's canal appears to have at present the most cases in support of it. An origin from a congenital inclusion of mucous membrane is strongly supported by Case II.

5. They may be acquired. Case I appears to be inflammatory in origin.

6. The frequent occurrence of abundant hæmorrhage noticed in some cases is probably to be attributed as suggested by Robert Meyer to concomitant vascular lesions (arterio-sclerosis, fatty degeneration, and increased blood pressure).

7. The cysts do not appear to be in any case the only pathological condition present, though in some cases the condition of the appendages is not mentioned. In only one case (Klein) is a concomitant congenital malformation mentioned.

8. In no case was the character of the cyst diagnosed before operation or death.

9. In two cases the patient's life might have been spared, had the condition been recognized directly the abdomen was opened.

## CASE I.

FIGURE I. Drawing natural size of section of Case I taken about the middle of the cervix. The cervical canal is represented by the dark star-like centre. Immediately around the canal and reaching almost to the parametrium are numerous small cysts visible to the naked eye, and on the left hand upper corner is a larger cyst about 10 × 6 mm. in diameter.

FIGURE II (12 diameters). One of the cysts in Case I shewing the colloid, somewhat concentric contents with some droplets of clear secretion. In the left hand lower corner is a small cyst communicating with the main one; the contents of the smaller cyst are shewn as a dark flap folded over into the larger cyst.

FIGURE III (140 diameters). Shewing a portion of the wall of a cyst in Case I and surrounding muscular structure. Above is the colloid contents, bordered below by the cylindrical cells with large droplets of clear secretion in their free extremity, and darkly stained nuclei at the base (the latter form a distinct dark band). The base of the cells is in direct contact with the muscular fibres of the uterus, which in the figure tend to be arranged concentrically round the cyst for a depth of about 1 cm.

## CASE II.

FIGURE IV (15 diameters). Shews the single cyst and its thick wall resembling mucous membrane with cytogenous tissue and gland like epithelial tubes.

FIGURE V (50 diameters). Shewing the structure of the gland-like formation in the bed of cytogenous tissue surrounding the cyst in Case II. They are almost identical in appearance with those seen in the mucous membrane of the cervical canal of the same case. They are irregular in shape and lined by cylindrical cells. Some of them contain desquamated epithelial cells.

## BIBLIOGRAPHY.

Amann, Josef. A., Junr. "Über Neubildungen der Cervicalportion des Uterus." *München,* 1892.

Atlée. "Voluminous Cyst of the Uterus." Transactions of the American Association. *American Journal of Medical Science,* 1843. v. 19.

Aschoff, L. "Cysten. Ergebnisse der Allgemeinen Pathologie, Jahrgang 1895." *Lubarsch Ostertag.* P. 457.

Berstein. "A propos d'un cas d'utérus Bicornis Septus chez Macacus Rhesus." *Thése de Genève*, 1908.

Breus, C. "Über wahre Epithelführende Cystenbildungen in Uterusmyomen." Wien, 1894.

Baraban et Vautrin. "Tumeur fibrokystique du col utérin d'origine congénitale." *Annales de gyn. et d'obst.*, 1898. T. l, p. 412.

Blount. "Ciliated cysts and glands of the uterine, tubal and pelvic serosa." *American Journal of Obstetrics, Aug.*, 1905, p. 210 (and Mercadé).

Boulins. "Zur diagnose der Tuben u. Peritonealtuberculose." *Verhandlungen des Deutschen Gesellschaft für Gyn.*, Leipzig, 1897, p. 415.

Burkhardt. "Kyste des linken Gärtnerschen Ganges." *Monatsschrift für Gebürtsh. u. Gyn.*, 1897. vi.

Candelet. "Kyste interstitiel de l'utérus ayant simulé un kyste ovarique et enlevé comme tel." *Bull. de la Soc. Anat.*, 1868. e serie. T. xiii, p. 392 (and Mercadé).

Cameron and Taylor. "On Adenomyoma of the Uterus." *The Journal of Obst. and Gyn. of the British Empire*, March, 1904. P. 248.

Chiari. "Zur pathologischen Anatomie des Eileitercatarrhs." *Zeitschrift fur Heilkunde*," 1887. Bd. viii, p. 457.

Cohn. "Contribution à l'étude de l'anatomie pathologique et de la pathogénie des nodosités des cornes utérines d'origine salpingienne." *Thèse de Paris*, 1901.

Druon. Néoplasmes kystiques de l'utérus." *Thèse de Paris*, 1899.

Fabricius. "Über Cysten an den Tuben am Uterus u. deren Umgebung." *Archiv für Gynäk.*, 1896.

Franqué, Otto. "Salpingitis nodosa isthmica u. Adenomyoma tubae." *Zeitschrift für Geburtsh. u. Gynäk.*, 1900. Bd. xlii, Heft i, p. 41. Resumé in *Revue de Gynècol.*, 1901. No. 1, p. 158.

Furet. "Les kystes de l'utérus." *Semaine gynècologique*, 1898. P. 217.

Gottschalk. "Demonstration zur Entstehung der Adenome des Tubenisthmus." *Centralblatt fur Gynäk.*, 1900. No. 15, S. 411.

Hegar. "Tuberkulose der Tuben u. des Beckenbauchfels." *Deutsch. medicinische Wochenschrift*, 1897. No. 45, p. 1713.

Huguier. "Kyste séreux interstitiel développé dans l'épaisseur de la paroi postérieure du corps de l'utérus. Mémoire sur les kystes de la matrice et sur les kystes folliculaires du vagin (and Mercadé). *Mémoire de la Société de Chirurgie de Paris*, 1847. T. 1, P. 241.

Kaufmann, E. "Spezielle Pathologische Anatomie." Berlin, 1907, p. 959.

Kessler. "*Verhandlungen der Gesellschaft für Geburtsh. u. Gyn. zu Berlin.*" 1902, p. 315.

Klein. "Kyste des rechten Wolffschen Ganges." *Zeitschrift für Gebürtshülfe und Gyn.*, 1890 (and Mercadé).

Kossmann. "Die Abstammung der Drüseneinschlüsse in den Adenomyomen des Utérus u. den Tuben." *Archiv für Gynäk.*, 1897. Bd. 54, p. 359.

Küstner. "Grundzüge d. Gynäk." Jena, 1893. (See Kaufmann, Spezielle pathologische Anatomie, Berlin, 1907.)

Lebec. "Etude sur les tumeurs fibrokystiques et les kystes de l'utérus." *Thèse de Paris*, 1880.

Lockstaedt. "Über Vorkommen u. Bedeutung von Drüsenschläuchen in den Myomem des Uterus." *Monatschr. für Geburtshülfe u. Gynäk.*, 1898. Vol. vii.

Loebl. "Cystic tumour of unusual character in the wall of the uterus." *The Lancet*, 1872. i, p. 12 (and Mercadé).

Maudach. "Beiträge zur Anatomie des Uterus von Neugeborenen u. Kindern." *Archiv für pathologische Anat. von Virchow*, 1899. Bd. 156, p. 94.

S. Mercadé. "Kystes et Abscès de l'utérus." *Thèse de Paris*, 1905–1906. *Revue de Gynécologie et de Chirurgie Abdominale*, 1907. P. 544.

Meyer, Robert. "Eine unbegannte Art von Adenomyomen des Uterus mit einer kritischen Besprechung der Urnieren hypothese von Recklinghausen." *Zeitschr. f. Geb. u. Gyn.*, 1903. Bd. 49, Heft 3.

Meyer, Robert. "Über adenomatöse Schleimhautwucherungen in der Uterus u. Tubenwand u. ihre pathologisch-anatomische Bedeutung." *Virch. Arch.*, 1903. Bd. 172, S. 394.

Meyer, Robert. "Einmündung des linken Ureters in eine utero-vaginal Cyste des Wolffschen Ganges." *Zeitschr. für Geburtsh. u. Gynäk.*, 1902. P. 401.

Meyer, Robert. "Über die Fötal Uterus Schleimhaut." *Zeitschr. f. Geburtsh. u. Gynäk.* Bd. 38, Heft 2.

Meyer, Robert. "Über Epithel Gebilde in Myometrium bei Föten u. Kindern." Berlin, 1899.

Meyer, Robert. "Über Drüsen, Cysten und Adenome im Myometrium bei Erwachsenen." *Zeitschr. f. Geb. u. Gyn.*, 1900–1901. Bd. 42, 43, 44. P. 526. Resumé in *Revue de Gynecol*, 1901. No. 1, p. 137.

Nedkow. "Contribution à l'étude des kystes Wolfiens des organes génitaux et de leurs annexes chez la femme." *Thèse de Montpellier*, 1897.

Opitz. "Über Adenomyoma u. Myoma der Tuben u. des Uterus. *Centralblatt für Gynäk.*, 1900. No. 15, p. 411.

Péan. "Kyste interstitiel des parois de l'utérus." *Leçons de Clinique chirurgicals*. T. iii, p. 980 (and Mercadé).

Pénard. *Bull. de la Soc. Anat.*, 1847. T. xxii, p. 11 (and Mercadé).

Peters. "Über pathologische Cölomepithel Einstülpungen bei menschlichen Embryonen." *Verhand. d. deutsch. Ges. f. Gynäk. zu Leipzig*, 1897. Bd. 7, S. 524.

Pick. "Die Adenomyome der Leistengegend u. des hinteren Scheidengewölbes." *Archiv für Gynäk.*, 1898. lvii, p. 461.

Pickliet. "Les débris du corps de Wolff et leur rôle dans la pathogenie des tumeurs." *Tribune Medicale*, Mars, 1889. Nos. 2 et 3, 2e série, p. 41.

v. Recklinghausen. "Die Adenomyome und Cystadenome des Uterus und Tubenwandung—ihre Abkunft von Resten des Wolffschen Körpers," Strasburg, 1896. Pp. 32, 61, 234. Plate II, Fig. 1, C, Cc.

Rieder. "Über die Gärtnerschen Kanäle beim menschlichen Weibe. *Archiv für pathologische Anat. von Virchow*, 1884. Bd. 96, p. 100.

Risch. "Traumatische Epithelcysten der Vagina." *Zeitschrift für Gynäk. u. Geburtsh.* Bd. 46, p. 523.

Rosenthal, I. "Cystis intramuralis uteri e canali Gärtneri. Endometritis polyposa." *Medycyna*, Varsovie, 22 Avril, 1900. No. 18. In *Revue de Gynécologie*, 1901. No. 1, p. 139 (and Mercadé).

Stufler. "Kyste rare de l'uterus extirpé par laparotomie." *Lucina Bologna*, 1 Octobre, 1904. No. 10, p. 151 (and Mercadé).

Verneuil. Recherches sur les kystes de l'organe de Wolff dans les deux sexes." *Mémoires de la Soc. de Chir. de Paris*, 1857. T. iv, p. 58.

# The Results of Ligature of the Fallopian Tube in the Rabbit.

PRELIMINARY COMMUNICATION.

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THE experiments undernoted were carried out with a view to ascertaining the mode of origin of the small cysts of the ovary, and the influence which the Fallopian tube has on the ovary itself. From examination of diseased appendages it seemed to me that the cystic conditions of the ovary might have been in many cases produced by the occlusion of the lumen of the tube by peritonitic adhesions. No support for this view, however, was found in the present series of experiments; indeed one was led to the direct contrary opinion. The ovary had not undergone cystic degeneration in any of the cases in which the lumen of the tube was seen to be occluded. But the experiments brought out an interesting point, namely, the origin of sactosalpinx or cystic dilatation of the Fallopian tube. It is a generally accepted fact that hydrosalpinx and other dilatations of the tube by fluid are due to occlusion of the lumen by adhesions or obstructions at either end. From my experiments I consider we obtain additional proof that these conditions are caused by some interference with the passage of fluid within the tube walls; hence my reason for publishing these notes.

*Technique of Operations.* As far as possible every precaution was taken at the time of operation to eliminate all risk of sepsis, and in no case did the animal seem to suffer any constitutional disturbance as a result of operation. The abdomen was shaved and the skin sterilised by scrubbing with soap and lysol solution. The instruments were sterilised by boiling, and the ligatures used were linen thread boiled and put into lysol solution.

The operative procedure was different in the various cases. In some, one tube was ligatured in two places and divided between. In others, one or both tubes were injected with an irritant (iodine) and the capsular epithelium of the ovary removed by scraping. This latter procedure was adopted with a view to test whether the

formation of cystic conditions of the ovary takes place by downward growths of the epithelium. In one experiment the whole fundus with part of both uterine cornua were removed.

Ether was used as a general anæsthetic, and where tincture of iodine was injected into the lumen of the tube 2 per cent. of cocaine was added as a local anæsthetic.

In one experiment the rabbit died in three months from hydatid disease. In two experiments, in which one of the animals was killed after two months and the other at three months, the only result obtained was a slight increase in the size of the tube on the ligatured side. In six experiments, the results of which constitute the material for these notes, the animals were not killed until between five and six months after operation. In each of these a change in the condition of the tube was found.

*Experiment I.* The right Fallopian tube was tied close to its junction with the uterine cornu, two ligatures were applied and the tube sectioned between them. The animal was killed five months later, and the following condition was found to be present.

The inner third of the Fallopian tube is dilated out to form a cyst about the size of a pigeon's egg, irregular in outline with some vascular injection of its walls. Adhesions to the sigmoid are seen. The walls of the cyst are thinned out, the cyst contents are clear. The end of the outer portion of the tube which had been sectioned is inserted blindly into adhesions in the fatty tissue of the broad ligament. The left tube is normal in appearance, the fimbriated end being somewhat adherent to the posterior surface of the broad ligament by the hydatid of Morgagni.

No differentiation in the structure of the ovaries can be made out on microscopical examination. Both contain a corpus luteum and several small cysts (hydrops folliculi).

*Experiment II.* The left Fallopian tube was tied 2·5 cm. from the uterus, and also at the tubo-uterine junction. The animal—a young rabbit—was killed five months and twenty-seven days later. Not much change is found on examination. For about 3 cm. in length the tube is completely occluded, being buried in dense adhesions in the broad ligament. In among these adhesions is found the knot of the external ligature. A thickened portion of the uterine cornu is seen about 1 cm. from the fundus, which on incision is found to contain the second ligature lying quite free in the lumen so that it must have traversed this distance from its original position by means of the peristaltic action of the walls.

*Experiment III.* Both tubes were injected with iodine into the lumen of each, and the capsular epithelium of the left ovary was removed by scraping. The animal was killed five months and twenty-three days later. The uterine cornua are somewhat congested. The left cornu, about 2·7 cm. from the fundus, has some bands of adhesions to the broad ligament posteriorly.

The tube is slightly atrophied and is folded upon itself in several places by adhesions, but no occlusion of the lumen is to be found. The right cornu is less congested than the left, and no adhesions are seen anywhere along the course of the tube. No change can be found on examination of the ovaries.

*Experiment IV.* The fundus of the uterus and inner portions of both cornua were excised in a young rabbit. The animal was killed five months and twenty-three days later, and the condition seen in Figure III was found.

The uterus is small and atrophied, the fundus and inner portions of the cornua being absent. Both cornua are dilated, forming two sausage shaped masses with very thin walls, with vascular injection and clear contents. The diameter of each cystic dilatation measures about 1 cm. The tubes are small and in places the lumen is occluded. Professor Noel Paton kindly examined the fluid contents for me and found a clear fluid faintly alkaline with albumen, but no mucin, and of the nature of lymph. The ovaries appear normal. No microscopical examination of the structures has been made as yet.

*Experiment V.* The left tube was tied about 3 cm. from its junction with the uterine cornu. The animal was killed six months and nine days later. The uterus is small, and about 1·3 cm. from the uterine end of the tube is seen a small cystic dilatation about the size of a bean, with clear contents, the walls of the mass being injected with blood vessels. The ligature is found at the outer end of this swelling; on the distal end is seen the division of the tube. Further along is seen a second swelling about the size of a pigeon's egg, irregular in outline and composed of the dilated tube with clear contents. The walls are injected and a few adhesions are seen on the surface.

The second ligature is found on the inner side of the swelling. A small dilatation is found out on the tube, the latter appearing somewhat congested. (See Figure IV.)

*Experiment VI.* The left tube was ligatured and the capsular

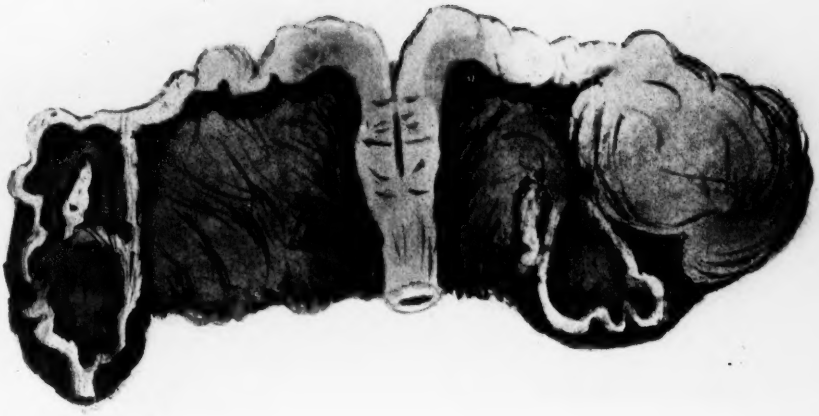

FIG. 1.

U of M

FIG. 2.

FIG. 3.

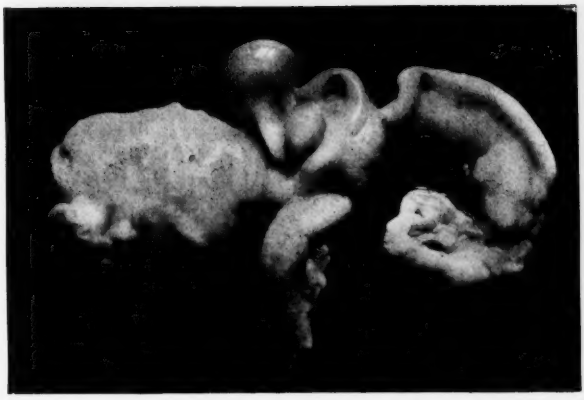

FIG. 4.

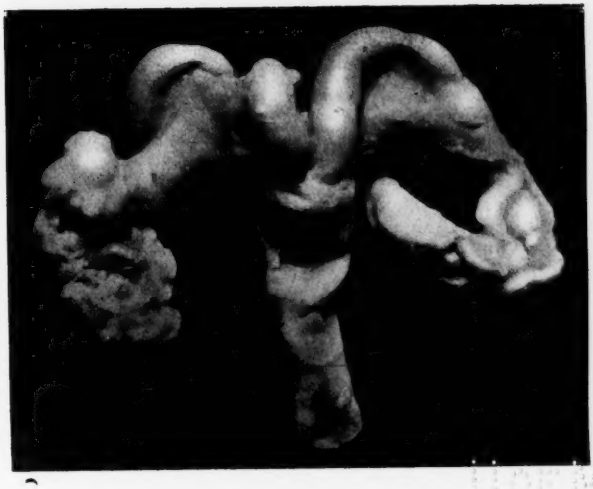

FIG. 5.

epithelium of the ovary removed. The animal was killed six months and nine days later.

Examination shows the presence of adhesions on the surface of the left tube. About 3·75 cm. from the fundus of the uterus the lumen is occluded by a deep furrow where the ligature has been; 2·5 cm. further out in the tube is a mass of encapsulated caseous tubercular-like material. Buried in adhesions near to this mass is the remaining portion of the tube, and the apparently normal ovary. The opposite tube and ovary show no change.

As the microscopical examination of the specimens is not yet complete no definite conclusion can be drawn as to the minute changes which may occur in the walls of the tube when dilated with fluid. The ovaries appear normal in every case. The chief point of interest lies in the fact that occlusions in the Fallopian tube have little if any effect upon the structure of the ovary. Also that local dilatations of the tube are due to occlusion of its lumen by adhesions which have been set up by some irritant or mechanical pressure which prevents the free passage of fluid along the tube.

The expenses for this research were defrayed by a grant from the Carnegie Trust.

## SELECT CLINICAL REPORTS.

*(Under this heading are recorded, singly or in groups, cases to which a special interest attaches either from their unusual character or from being, in a special sense, typical examples of their class).*

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### Carcinoma of the Cervix of a Prolapsed Uterus in a Patient aged 86, with a Contact Carcinoma on one Labium. Vaginal Hysterectomy.*

By Henry Russell Andrews, M.D., B.S. (Lond.), M.R.C.P.,
*Assistant Obstetric Physician to the London Hospital.*

E. H., single, aged 86, was brought to see me in November, 1909. The menopause had occurred 40 years previously, and since then there had been no bleeding until 9 or 10 weeks before I saw her. For 5 or 6 weeks there had been slight bleeding, and for the last 4 weeks the bleeding had been rather severe, especially at night. For 4 weeks she had noticed a very tender mass protruding from the vagina, and had complained of a great deal of pain and tenderness in sitting. There had been little, if any, wasting. The patient was a hale old country woman.

The cervix projected about 2 inches outside the vulva, and the fundus uteri was fairly high up. There was a foul carcinomatous ulcer, with deep excavation and a good deal of new growth, about the size of a half crown, on the right side of the vaginal portion of the cervix, extending on to the vaginal wall. On the inner side of the posterior part of the right labium, where it was in contact with the diseased part of the cervix, was a carcinomatous ulcer about the size of a shilling.

I sent the patient into the London Hospital and operated a few days later. The operation was begun with the idea of removing only the cervix and the involved part of the vaginal wall, but the tissues were so vascular that it was thought best to remove the whole uterus. Vaginal hysterectomy was performed as rapidly as possible. The body of the uterus was brought out retroverted and the broad ligaments tied from above downwards, the last step of the operation

* Specimen shown at the Obstetrical Section, Roy. Soc. of Med., March, 1910.

being the separation of the bladder. The carcinomatous ulcer of the labium was then excised.

The operation lasted 35 minutes. The patient stood it extremely well, and there was very little shock. Recovery was uninterrupted; she got up on the 18th day, and left the hospital on the 23rd day.

The uterus was 5 inches in length, the supravaginal portion of the cervix being much elongated. The body of the uterus contained several small fibroids.

Microscopically both ulcers are seen to be squamous-celled carcinomata, though the appearances are not exactly alike, the contact carcinoma being made up of cells smaller than those of the cervix carcinoma, and possessing fewer cell nests.

The case exhibits three points of interest:—

(1) Carcinoma of a prolapsed uterus. While chronic ulceration is very common in cases of prolapse of the second or third degree, carcinoma is surprisingly rare. Although the patient had been aware of the prolapse for only four weeks it is impossible to believe that the very considerable elongation of the uterus which existed had been produced in so short a time. It is probable that the uterus had been prolapsed for a much longer period, as is suggested by the presence of the contact carcinoma in the labium.

(2) The patient's advanced age, 86. In spite of this the disturbance caused by the hysterectomy was very slight.

(3) The presence of a contact carcinoma. There was an area of unaffected vaginal mucous membrane, three inches across, between the two ulcers.

# REVIEWS OF CURRENT LITERATURE.

UNDER CHARGE OF EARDLEY HOLLAND, M.D.

LIST OF COLLABORATORS:

LONDON. Alban Doran, F.R.C.S.; J. J. Macan, M.D.; J. B. Banister, M.D.; B. Glendining, M.D.; A. L. H. Smith, M.B.; F. E. Taylor, M.D.; C. White, M.D.; J. A. Willett, M.D.

EDINBURGH. E. Scott Carmichael, M.B.; Miss J. H. Filshill.

GLASGOW. E. H. L. Oliphant, M.D.

SHEFFIELD. Miles H. Phillips, M.B.

CHELTENHAM. C. J. N. Longridge, M.D.

## The Prophylaxis of Embolism after Gynæcological Operations.

J. VEIT (*Zentralb. f. Gyn.*, 1910, No. 1) attributes the genesis of emboli to infective (putrefactive) germs entering the veins during the operation. In 4,000 major operations, organs containing such germs were opened in 25 cases; in 8 cases of total hysterectomy the hæmorrhage persisted until after the opening of the vagina, and in this connection Veit introduces prophylaxis. The veins should be attended to by ligature while the operator's hands are still perfectly aseptic, every bleeding vessel being secured before any organ containing infective germs is opened; and Veit holds that if this is done there will be no emboli such as must be attributed to micro-organisms. J. J. M.

## The Treatment of Carcinoma of the Vestibule by means of high frequency currents.

SIRTORI (*Annali di Ostetricia*, November, 1909) describes the treatment of carcinoma of the vagina by means of high frequency currents according to Keating-Hart's method. The neoplastic surface was exposed to the action of the current for 10–15 minutes, either after curetting, or both before and after, if the tissue at first resisted the spoon. The resulting scar fell off in three days without any hæmorrhage occurring, and in about 15 days the surface was becoming rapidly covered with epithelium. According to the stage of the case, treatment was repeated twice or oftener after the lapse of 15 or 20 days. The vaginal walls were carefully protected and chloroform was always used as a narcotic instead of ether. The action of Keating-Hart's current is threefold—electro-thermic, electro-caustic and electro-chemical, which last effect is both local and general and more important than the other two. Within three months Sirtori treated 13 cases, and got the most satisfactory results in carcinoma of the os externum and of the labia of the vestibule, especially in ulcerative or vegetative forms. Nodular forms required longer treatment. In carcinoma of the cervix results were uncertain and superficial. Where the tumour was on the rectal or vesical septa the treatment was contraindicated, because of the risk of perforation. Applied to epithelioma of the vestibule it seemed to hold out hope of recovery in cases where other interference had been considered useless. After operation, slight rises of temperature usually occurred, and the patients sometimes suffered from cramp or formication in the limbs, but in all cases there was a remission of cancerous development and marked improvement in the general health of the patient.

Objectively, it was noted (1) that the uterus became mobile where previously fixed; in one case mobilization was so complete that radical intervention was rendered possible; (2) that the lymphatic glands involved became smaller and less painful—in one case arrest of suppuration in the inguinal glands took place; (3) in the fulgurated tissue, histologic changes occurred which were not as a rule destructive in character. These were—separation of the neoplastic tissue into islands, œdema and small-celled infiltration between the connective-tissue fibrils of the dividing septa and formation of vascular cavities and hæmorrhagic zones beween the neoplastic islands. After ten days or so the septa and vascular cavities were filled up by young connective-tissue which constricted and destroyed the neoplastic patches. J. H. F.

## Leucoplakic Vulvitis and its Relation to Kraurosis Vulvæ and Carcinoma Vulvæ.

C. Berkeley and V. Bonney (*Brit. Med. Journ.*, 1909, vol. ii, p. 1739) consider that leucoplakic vulvitis and kraurosis vulvæ are two distinct diseases which have been frequently confused. They define leucoplakic vulvitis as a chronic inflammatory condition of unknown origin characterized in its early stages by marked hyperæmia and cellular activity, and in its later stages by marked epithelial hypertrophy and a thickened sclerosed and retracted condition of the subepithelial tissue. The whole of the vulva, except the vestibule and orifice of the urethra, may be affected, and the disease may spread to the thighs and perineum.

Four stages are described: in the first stage the affected parts are red, swollen, dry and excoriated; in the second stage, there is retraction with thickening, the tissues being white and semi-opaque; it is the appearance in this stage which has given the name leucoplakia to the disease; in the third stage cracks and ulcers which may bleed when touched appear with slight discharge; carcinoma often becomes engrafted on the diseased area at this stage. In the fourth stage the vulval surface is smooth and white, the labia minora and clitoris disappear, and the disease becomes quiescent.

The chief symptom is pruritus, especially in the first and second stages. In the third stage there is pain and sensitiveness due to the exposure of nerve endings. In the fourth stage symptoms disappear.

Microscopically, the early stages show surface desquamation of epithelium and diffuse subepithelial lymphocytosis. Later, a hyaline zone of de-elasticized tissue underlies the epidermis and the interpapillar epithelial processes are elongated. Later still, the superficial epithelial cells undergo hypertrophy and keratinization, and the interpapillar processes atrophy from subepithelial sclerosis. In the final stages, the epithelium is thinner than normal with keratinization of the surface cells and sclerosis of the subepithelial tissue.

Kraurosis vulvæ consists of an atrophic condition of the vulva associated clinically with stenosis of the vaginal orifice and pathologically with certain changes in the dermis. The parts affected are the labia minora, vestibule, orifice of urethra and that of vagina with the hood of the clitoris. The outer surface of the labia majora, the perineum and thighs are never affected.

In the first stage, the muco-cutaneous surface is red, glistening and shiny with isolated red or purple patches varying in size from that of a pin's head to half a split pea. There may also be a caruncular condition of the urethral orifice.

In the second or final stage, the muco-cutaneous surface becomes pale yellow, and glistening and perfectly smooth. The vaginal orifice contracts, the labia minora and clitoris disappear, the mons veneris atrophies, and the pubic hair becomes brittle and breaks off or falls out.

The symptoms are soreness and pain, with dysuria and dyspareunia. Pruritus, contrary to the text-books, is seldom present.

Microscopically, the subepithelial tissue is the seat of a massive plasma-cell

proliferation over the surface, of which the surface is greatly reduced in thickness. Many polynuclear leucocytes are present in the subepithelial tissues and intercalated between the epidermal cells, whilst there is no less of elastic tissue.

Three groups of cases occur, viz., (1) in young women with sterility; (2) at or after the menopause; and (3) after operations involving removal of both ovaries. Hence deficient ovarian action appears to play a large part in the causation of kraurosis.

Kraurosis is never associated with carcinoma. For the pruritus in leukoplakic vulvitis zymocide lotion, resinol ointment and X-rays are recommended. Where these fail wide excision should be practised. In kraurosis vulvæ the painful parts should be dissected out and the vaginal orifice enlarged. F. E. T.

## Tuberculosis of the Vulva.

Mériel, Toulouse (*Ann. de Gyn. et d'Obstét.*, December 1909), reports two cases of tuberculosis of the vulva. In the first, of the hypertrophic form, a tumour, arising from the left labium minus, covered the vulva and had the appearance of elephantiasis. The neighbourhood of the clitoris, the posterior commissure and the labia majora were thickened and condylomatous. The mucosa of the vulva was not altered nor was there any ulceration. In the apex of the right lung tuberculosis seemed to be threatened. The hypertrophic portions of the vulva were excised, and in two places proved by microscopical examination to be undoubtedly tubercular. The author saw the patient again several years later: the condition of the genitals was normal, but the pulmonary tuberculosis more advanced. True hypertrophic tuberculosis without ulceration is so rare that Mériel could only find three published cases, but he thinks that tuberculosis is not sufficiently considered in cases without ulceration.

The second case was the more common, ulcerative form of vulval tuberculosis, and in it also the lungs were affected. Mériel believes that the disease may be propagated, not only through the circulation, but directly from the body linen. In this second case the diagnosis lay between soft chancre and tuberculosis. J. J. M.

## Fibroma of the Vagina.

J. Fabricius (*Zentralb. f. Gyn.*, 1909, No. 28, S. 993) exhibited, at the Vienna Obstetric and Gynæcological Society last year, a myofibroma of the vagina; it had been removed from a virgin aged 49, who had been aware of the growth of a tumour for some months which had caused some urinary troubles and been attended by an unpleasant discharge. On examination, a tumour as large as an orange projected from the vulva, the apex of which, that is to say the lowest part, looked like the portio, and at first gave the impression that the uterus was prolapsed. Further investigation proved that the tumour was situated directly beneath the urethra and had evidently originated there. The lower surface of the urethral mucosa overlaid to some extent the anterior face of the tumour, and the upper margin of the external orifice of the urethra was dragged in the shape of a sickle over the tumours. The removal was a very easy matter, as on division of the mucosa the tumour slipped out. Microscopic examination proved it to be a myofibroma.

Hardouin (*Zentralb. f. Gyn.*, 1909, No. 46, S. 1606) reports: A woman, aged 48, noticed, five years previously, a small tumour between her labia, which increased in size during the following years. At the same time she suffered from troubles in micturition, and after a time the tumour ulcerated and there was discharge and hæmorrhage. The tumour was about 7 cm. long, and sprang from the neighbourhood of the urethral orifice, but extended to some distance backwards into the vagina. The vaginal mucosa was continued to the margin of the ulceration on the base of

the tumour. The origin of the tumour in the anterior vaginal wall extended back into the anterior fornix. The urethra was dragged backwards and somewhat to the right, thus accounting for the urinary trouble. The tumour was removed by incisions through the healthy mucous membrane; histological examination showed the mucosa to be quite intact and the tumour to be a true, though somewhat œdematous, myoma. Growths of the kind generally appear during the child-bearing age. They may arise from the interstitial portion of the cervix, or from the urethra, but in the majority of cases from the connective-tissue of the vaginal mucosa, though their exact point of origin cannot be ascertained. J. J. M.

## Vaginal Fibroma from Lateral Wall.

M. W. Schestopal (*Zentralb. f. Gyn.*, 1910, No. 4, S. 115) reports a case of interest, as the fibroma originated from the lateral wall of the vagina. The patient, aged 23, had borne two children; in her second labour the physician found delivery impeded by a tumour in the vagina, but was able to deliver with forceps. For two months afterwards the tumour gave the patient no trouble, but then she suffered from a feeling of weight in the hypogastrium and from trouble in micturition and defæcation. An extremely hard tumour was found in the right vaginal wall at the limit between the lower and middle thirds; it was closely adherent to the mucosa and consisted of two nodules. It was enucleated, and the patient made a good recovery. Microscopic examination proved it to be a fibroma. J. J. M.

## Tuberculosis of the Cervix.

Delétrez, Brussels (*Ann. de Gyn. et d'Obstét.*, January 1908), describes a case in which a cauliflower growth on the portio caused a suspicion of carcinoma, but microscopic examination proved one of tuberculosis. The patient, aged 21, was in excellent health six months after vaginal total extirpation.

In the specimen obtained at the operation the corpus uteri was of normal size, but the cervical portion, with the tumour upon it, was greatly thickened. The inner surface of the uterus had a fibrous appearance and was beset with small granulations lying apart from one another. Towards the collum there were numerous papillary granulations; the surface, on section, was very red in colour, the tissue diminished in consistence, and the demarcation from the tissue of the corpus was not clearly recognizable. In the intrauterine zone next the collum, the microscopical condition was especially interesting. The mucosa here showed small-celled infiltration, decreasing in the deeper parts. Glands were present in considerable excess, and the specific morbid appearances of tuberculosis could be seen in this vicinity. But tubercle was also found more deeply, even near the muscularis.

As the patient had no signs of tuberculosis elsewhere, the author is inclined to describe the case as one of *primary* genital tuberculosis. The cases already published tend to show that primary tuberculosis of the portio appear in the hypertrophic form, the ulcerative form being the rule for descending or secondary infection. J. J. M.

## Papillary Tuberculosis of the Collum Cervix Uteri.

E. Cova (*Zentralb. f. Gyn.*, 1910, No. 6, S. 216) declares that the papillary form of tuberculosis of the cervix, which till lately has been considered the most uncommon, is, as a matter of fact, the one most frequently met with. For a long time it was confused with carcinoma, and indeed there is clinically much similarity between the two affections: metrorrhagia, bleeding on touch, and discharge; but the discharge in tuberculosis is assentially different from that in carcinoma: in the latter thin-like washings of raw meat, in the former very thick, viscid and tenacious, and so adherent that when wiped away there are bleeding points. In the speculum one sees

the portio covered with dark-red tissue consisting of masses of fine elongated papillæ glued together by viscid mucus. Microscopic examinations of the excisions shows that their structure consists of firm connective-tissue rich in blood-vessels invested with very tall cells of cylindrical epithelium. In the connective-tissue there are giant cells and tuberculous nodules, and bacilli may be found in the tissues as well as in the discharge. Histological investigation shows that the discharge does not come from the cervical glands, but from the epithelium of the papillæ. J. J. M.

## Hæmatometra in Advanced Age.

Arthur Stein, New York (*Zentralb. f. Gyn.*, 1910, No. 4), reports the following case:—A widow, aged 66, who had enjoyed good health, and in whom after a typically normal menstrual life the menopause had commenced in her 46th year and been established, after three years' symptoms of change, from her 49th to her 64th year, had been perfectly well. She then began to suffer from pronounced vesical symptoms; frequent and painful micturition and painful scalding at the end of the discharge, and these symptoms continued. There was no increased thirst, nor did she lose weight or strength, but appeared robust and healthy. She complained of occasional pain in the loins. All her organs were normal, but her abdomen was somewhat distended and tympanitic except for a dull sound over a small area in the middle line just above the symphysis. She had an external inguinal hernia on the right side about the size of a hen's egg. The external genitals and vagina were normal except for senile shrinking. The cervix was unaltered to touch.' In the seat of the corpus there was a soft, round, uniform tumour, larger than a closed fist, and with a smooth surface. The tumour was freely moveable; its upper pole could be felt four fingers breadth above the umbilicus, while the lower one caused marked depression of the anterior vaginal wall. The adnexa did not seem to be morbidly changed; the parametria were normal. Her urine proved normal with a trace of indican. The diagnosis made was a softened myoma or a monolocular ovarian cyst. Total extirpation of the uterus was performed with Pfannenstiel's incision on October 7, 1909, but in the attempt to eventrate the greatly enlarged corpus uteri with vulsella, about half a litre of chocolate-brown fluid escaped. The uterus and normal adnexa were removed, vaginal drainage with iodoform gauze arranged, and after the inguinal hernia had been closed in the usual way, the abdominal wound was sutured in four layers. The patient made an uninterrupted recovery, and went home on the 12th day.

The uterus, even when empty, was as large as the fist, its walls were very thin except in the cervix where they seemed thickened. There were no signs of malignant degeneration. Microscopical examination showed that the walls of the corpus uteri were normal except that the walls of the blood-vessels were thickened. On the other hand, the wall of the cervix, including the whole of its muscular tissue, was beset with numerous glands lined with many layers of cylindrical epithelium. In some spots metaplastic processes had gone on and squamous epithelium had taken the place of cylindrical. The final diagnosis accordingly was hæmatometra and adenocarcinoma cervicis.

It is remarkable that in this case the carcinoma had not betrayed itself in any way; moreover, that the hæmatometra caused no symptoms until the patient was so advanced in age, Stein can only suppose that at the commencement of the menopause the cervical canal became occluded owing to senile shrinking, and that during the three years of change bleedings, even though slight ones, into the uterine cavity led to the formation of the hæmatometra. The carcinoma cervicis had probably developed during the last 2½ years only, when the vesical symptoms appeared. We may suppose that the extending carcinoma eroded the vessels and more blood was poured into the uterine cavity enlarging the hæmatometra and setting up pressure symptoms. It is,

however, possible, considering the sclerotic condition of the pelvic vessels, that one or more of the smaller vessels of the uterus wall may have given way and so caused the enlargement of the hæmatometra.

The case most analogous to the above that has been published is Odebrect's one of pyometra (*v. infra*). J. J. M.

Stein reported his case to the New York Academy of Medicine (*Medical Record*, 1909, December 11), but not so fully. E. C. Savage then described a somewhat similar case. A woman of 65 wished "an ovarian tumour" removed. The introduction of a sound to ascertain the position of the uterus was immediately followed by a gush of dark, unclotted blood. The uterus was washed out and packed, and the woman made a good recovery. Three years later, when 68 years old, she had a similar experience, and the uterus filled a third time. About six years after first coming under observation she died of diabetes. There was no pathological report; but nothing suggested malignancy.

## Hæmatometra.

P. v. Kubinyi, Budapest (*Zentralb. f. Gyn.*, 1910, No. 1, S. 28), reports: A woman of 62, seven or eight years after the menopause, had suffered for some months from hæmorrhages. An ovoid, distinctly fluctuating tumour could be felt in her abdomen extending upwards to the costal arch and continuous with the slender cervix below. It was supposed to be a cystic myoma, and hysterotomy by Chrobak's method was attempted, but during the amputation a sanguineo-serous fluid poured out of the uterus, and as the stump exhibited malignant degeneration it was removed also. The woman made a good recovery. Histological examination disclosed a fibroma in the fundus, a cancerous focus the size of an orange in the body and cervix of the uterus, and endometritis hypertrophica. Owing to the discharge from the endometrium and from the cancer, and the closure of the cervical canal the uterus had become cystically enlarged. v. Kubinyi points out that endometritis is regularly associated with fibroma and that cancer also often originates from it, and suggests that endometritis may be the cause of the frequent association of these two new growths. J. J. M.

## Pyometra.

Odebrecht (*Zentralb. f. Gyn.*, 1909, No. 41, S. 1435) recently exhibited a remarkable specimen at the Berlin Obstetric and Gynæcological Society from a patient, aged 62, who, since her menopause, 10 years previously, had been in good health till two years and a half ago, when she had hæmorrhage persisting for one day. For the last two years she had had a scanty white discharge, and about the same time began to suffer from pains and pressure symptoms on the bladder and rectum. Her pelvis was filled with a cystic tumour with rigid walls and larger than a child's head, which depressed the posterior vaginal vault almost down to the introitus, and was to be distinctly felt from above. The os uteri could, with difficulty, be reached high up behind the symphysis, above which a hard body, somewhat moveable towards the tumour, could be felt externally resembling a small uterus. The diagnosis made was an intraligamentary ovarian cystoma, or a cystic myoma, but this was proved a mistake on laparotomy. In order to release the tumour from the small pelvis it was necessary to puncture it, whereupon a stream of bloody purulent fluid was discharged. The tumour proved to be the uterus, and was removed by total extirpation. Both tubes were cystic. A whitish mass, about the size of a pea, lay in the os uteri, apparently a carcinoma, and sections of the cervix proved that it had undergone carcinomatous changes. The uterine cavity was absolutely closed below, and not even

an atretic cervical canal could be made out. The mucosa of the cavity, which contained some remains of the purulent fluid was unaltered. The true diagnosis therefore was : retroflexion of an atrophic uterus, atresia of the canal, discharge from the uterine mucosa, with the development of a voluminous pyometra and, associated with, but perhaps independent of these conditions, carcinomatous degeneration of the cervix in which no canal could be made out. J. J. M.

## Changes in the Normal Endometrium during Menstrual Life.

C. C. Norris and F. E. Keene (*Surgery, Gynæcology and Obstetrics*, January 1910) have examined curettings from 100 patients, none of whom were suffering from diseases of the uterus, such as fibromyoma or inflammation. Revising the microscopical findings, in the light of the menstrual history of each patient, they are led to subscribe to the views of Adler and Hitschmann. Norris and Keene recognize four distinct periods in the menstrual cycle, viz., post-menstrual, interval, pre-menstrual and menstrual. The transition is so gradual, however, that changes characteristic of two contiguous phases are often to be seen in different portions of the same endometrium, or even in different areas of the same section. Their findings in the first three stages are carefully described; for a description of the appearances during the menstrual period they have to rely upon the statements of Adler and Hitschmann. The authors think it essential that the pathologist, when examining uterine curettings, should know when the last menstrual period occurred. For this knowledge, combined with an understanding of the changes occurring during the various transformations of the normal endometrium, will show that many of the curettings frequently diagnosed as glandular or interstitial endometritis are nothing more than different phases (pre-menstrual and post-menstrual respectively) of the normal menstrual cycle. Endometritis, indeed, in the true sense of the term, is much less frequent than is generally thought. For their own part, they reserve the term for these cases in which the endometrium shows distinct, active histological evidence of inflammation, and acute and chronic are the only subdivisions which they recognize. The paper also includes a detailed description of microscopical appearances of the decidua of intrauterine and extrauterine pregnancy, and a comparison of such appearances with those found in the normal endometrium. M. H. P.

## Preclimacteric Uterine Hæmorrhage.

M. Rabinovitz (*Amer. Journ. Obstet.*, Jan. 1910) considers a series of cases in which the hæmorrhage was due to fibrosis uteri. He describes the condition as one which occurs in women who have borne several children, who have aborted one or more times, who are in the fourth or fifth decade of life, and who exhibit no sign of specific, organic or metabolic diseases. Moreover, on examination, these patients show no distinct palpable lesion.

The symptoms are due, in the author's opinion, to an abnormal development of fibrous connective-tissue in the uterine wall, which replaces the exhausted and finally atrophied muscle fibres. With the diminution of fibrous and elastic tissue there ensues a loss of contractility, and this loss becomes greater after each succeeding pregnancy. The hæmorrhage is not due to disease of the vessel walls, but to the inability of the uterine muscles to contract and close the gaping sinuses. When vessel changes do take place they are microscopically shown to be due to an invasion of fibrous tissue from without.

Dr. Rabinovitz advocates hysterectomy as the treatment of the condition.

J. B. B.

## Climacteric Hæmorrhages.

J. R. Goodall (*Amer. Journ. Obstet.*, Jan. 1910) describes the condition of uncontrollable hæmorrhage at the menopause, in which the uterus has retained its form, but is generally somewhat enlarged. The pathological change, he finds, consists of a large increase of elastic tissue which is found chiefly in the middle third of the uterine wall, around the large arteries and veins. In the inner third increase of elastic tissue is also found, but it appears to have no definite arrangement. The connective-tissue and muscle elements appear to hold their relative normal proportions, but the muscle cells seem to have lost their normal healthy appearance.

The author believes that the supposed hyaline degeneration of muscle, so commonly described as present in metritic sections, is due to the method of staining heretofore in use, as the elastic tissue has not taken up the stain. He lays stress on the routine use of Weigert's method in such cases.

The origin of the elastic tissue he considers to be an imperfect involution of the puerperal uterus. He is convinced that infection cannot give rise to true metritis.

The cause of the hæmorrhage, he holds, is a want of contractility in both the vessel walls and the uterine muscle surrounding them; and says that it is impossible even to guess at the relative importance of these two factors.

The author lays stress upon the prophylactic treatment of the condition by preventing or removing all conditions which tend to subinvolution, calling attention to the necessity for a careful examination some weeks after labour.

He advocates hysterectomy as a sure cure for the condition, but suggests the possible wisdom of curetting before proceeding to a more radical operation.

J. B. B.

## Extract of Corpus Luteum in Disturbances of Artificial and Physiologic Menopause.

Morley (*Journ. of the Michigan State Med. Soc.*, Nov. 1909) reports his results in 18 cases. This report is a continuation of the one that appeared in the August number of the *Detroit Medical Journal*. The author used an extract made from the corpora lutea of beef ovaries rather than an extract of the entire ovary, as the consensus of opinion seems to be that the internal secretion of the ovary is produced by the yellow body. The extract is given in five grain doses, three times a day, one-half to one hour before meals. His results in 18 cases may be summed up as follows: Five were cured, 12 were improved and one obtained no relief. Included in the 12 cases that were improved are grouped those that are still taking the extract. A permanent cure may result in a few of the cases under treatment. Of the 18 cases, 14 suffered from disturbances of operative or artificial and four from those of natural or physiologic menopause. While the results obtained is so small a group of cases do not warrant the drawing of any definite conclusions, still the author thinks that the results are favourable enough to justify a continuance of the treatment in other cases, where there is a disturbance incident to artificial or physiologic menopause.

## The Treatment of Parametritic Exudations with Injections of Physiological Salt Solution.

F. Kirstein, Göttingen (*Zentralb. f. Gyn.*, 1909, No. 52), in four cases of parametritis, has had satisfactory results from injections, made from the vagina into the exsudate, of 0·8 per cent. solutions of table salt. The treatment extended over 15, 19, 27, 29 days respectively; the number of injections from 10 to 19. Altogether the number of injections amounted to 60, and the only unwelcome effects were one case each of hæmorrhage, abdominal pain and headache. Of course it is questionable whether the exudations might not have been just as much absorbed in the same time without the injections, indeed no explanation can be given for the injections having any effect at all, but Kirstein thinks that further experiments are desirable. J. J. M.

## The Histology of the Grafted Ovary.

Sauvé (*Bulletins de la Société Anat. de Paris*, November 1907), prosector to the Faculté de Médecine, Paris, claims definite results as the fruit of his own researches and experiments. He speaks plainly about careless reports, and unwarranted assumptions. Thus out of forty recent treatises and papers on transplantation of the ovary many do not include careful reports of each experiment, whilst only six are furnished with drawings illustrating the histology of the organ subjected to grafting. The six in question were prepared by Knauer, M'Cone, Limon, Carmichael, Amico Roxas and Marshall and Jolly. Sauvé finds that it is unnecessary to attempt to ensure the vascular supply of the ovary. Carrel and Guthrie insisted, four years since, on scrupulous care being taken for that purpose, and reported their own method, which they felt certain could alone ensure the vitality of the grafted tissues. Sauvé finds that the ovary may be successfully grafted without any such precautions, and he has succeeded in transplanting six ovaries successfully, five on the bare peritoneum. In three cases, where he carried out his own views in their entirety, the results were striking. Each experiment was performed on a rabbit, and in each both ovaries were excised. One was grafted on the peritoneum; a buttonhole was made in the serous membrane of the iliac fossa, the hilum of the ovary being sutured to its edges. The operation was undertaken with perfect aseptic technique. One ovary was kept as a standard or "witness," *ovaire témoin*, sections being made for purposes of contrast with the grafted organ. The rabbit was killed six months later. Sauvé detected most remarkably definite changes in the relations of the histological elements of the transplanted ovary. He publishes illustrations of sections of the standard ovary and of its transplanted fellow. The primordial follicles are scantier in the grafted organ. The Graafian follicles are likewise scantier, and, on the other hand, greatly enlarged; "they have almost (*presque*—why almost?) the aspect of cysts." Sauvé notes that Carmichael also detected "gigantic yet scanty" follicles. The most striking feature, however, was a predominance of corpora lutea, so much hypertrophied as to take up the greater part of the ovary. Branca detected giant corpora lutea in the herniated ovary, in 1901, and when Sauvé showed that observer sections of the grafted ovary, Branca was astonished at the homologous histological change, so evident alike in the ectopic and the grafted organ.

Sauvé and Quénu reported, at the same sitting, a case of transplantation in the human subject, after hysterectomy for bilateral salpingitis. Nine months later Quénu removed the graft as it had become the seat of pain, whilst the patient suffered from distinct menopause symptoms. (Compare Casalis, "Notes on a Case of Ovarian Transplantation," Journal, Vol. xv, p. 325). The histological examination of the excised graft made by Branca showed that there was but little evidence of regeneration of follicles. In fact hardly any ovarian elements were detected. Alban Doran.

## Case of Ovarian Pregnancy.

E. M. Prince (*Journ. Amer. Med. Assoc.*, vol. liv., p. 461, 1910).—A woman, aged 35, the mother of four children, had reason to suspect that she had become pregnant in June 1907. In August she had a show and some pain in the abdomen, which at times was moderately severe. In November she felt violent movements of the child and had a severe uterine hæmorrhage. In February the movements of the child were pronounced, and the hæmorrhage continued, clots and pieces of flesh being passed. On March 1 she had a severe rigor followed by high fever for forty-eight hours. On examination a large tumour was found in the lower abdominal region more to the right than the left side. It was fixed and occupied the whole pelvis, and was somewhat irregular in size. The tumour was removed under gas-oxygen anæsthesia supplemented by a small amount of ether, and the patient made a good recovery.

The tumour contained a full-time fœtus, weighing 7½ lbs. Sections were taken from six portions of the wall of the tumour; all the sections contained the remains of corpora lutea, and the stroma was identical in appearance with that ordinarily found in the ovary. On this pathological evidence the case was considered to be one of ovarian pregnancy. C. N. L.

## Ovarian Pregnancy at Term: Recovery of Mother and Child.

Walter C. Kirchner (*Amer. Journ. Obstet.*, Nov. 1909) reports a case of the above. The patient was an octipara, and gave a history of a supposed prolonged gestation. She had, after two months' amenorrhœa, lost a considerable amount of blood, the loss being accompanied by faintness and the expulsion of a "soft pinkish substance, smaller than an egg," from the vagina. Pain was not severe and soon subsided. The hæmorrhage lasted in all 14 days and was not repeated. She next complained of nausea and vomiting and pain on the right side of the abdomen. Five months after her last period she felt fœtal movements and remained fairly well for three months, when she experienced a sudden procidentia uteri. This was replaced and remained in normal position for three weeks, when it recurred. On the day on which she was expecting her confinement she began to have pain in the back which continued for two days. Twelve days later she entered Hospital. Laparotomy was performed, and a living child which, beyond slight maceration and desquamation of skin, appeared perfectly normal, was delivered. The patient and child both recovered.

A description of the specimen is given, and the author considers the case to be one of ovarian pregnancy for the following reasons:—

1. The history of the case points to an ovarian pregnancy on the right side.
2. A large gestation sac resembling an ovarian cyst was found at operation, the pedicle being in the region of the right ovary.
3. The ovary was comparatively free, slightly enlarged and centrally placed. Prolapse was possible.
4. The left ovary and tube were normal.
5. A normal right ovary was not found.
6. The right tube was adherent externally to the gestation sac, but otherwise was normal.
7. The placenta was entirely within the gestation sac and free from attachment to any part of the peritoneal cavity.
8. No mass of ovarian tissure was found, nor anything to indicate tubo-ovarian or abdominal pregnancy.
9. The characters of the sac were those of an ovarian cyst, and microscopic examination gives evidence of ovarian structure and origin.
10. The gestation sac was attached to the uterus by a ligamentous structure, and the position of the right tube on the specimen seems to indicate that the tube did not become adherent to the sac until it had attained considerable size. J. B.B.

## The Diagnosis and Treatment of Tubal Pregnancy.

Spinelli (*La Ginecologia*, December 1909) related to the Italian Obstetrical Society at Rome, the results of his observations of 260 cases of tubal pregnancy, on 106 of which he had operated. He considers that diagnosis in the early stages may be based on (*a*) increase in volume of the uterus, but evidence of its emptiness; (*b*) absence of Hegar's sign along with amenorrhœa and other local signs and physical symptoms which usually indicate pregnancy; (*c*) characteristically dark colour of hæmorrhage from the genitals; (*d*) acetonuria; (*e*) on bimanual examination, detection of an ovoid swelling. Biopsy by means of colpocœliotomy will establish the

diagnosis, and should be employed when ectopic gestation is suspected, just as there should be no hesitation in dilating and curetting the uterus when there is grave suspicion of malignant disease. Expulsion of the decidual membrane confirms the diagnosis, but the absence of this elimination does not indicate that tubal pregnancy does not exist, nor does it always signify the interruption of such a pregnancy. As a rule, cases do not advance beyond the third month, but should this have happened diagnosis in the later months will depend on the position of the swelling, of the uterus and of the fœtal heart sounds.

As regards cure, the dogmatic proposition formulated by Pinard in 1893 holds good :—"Every diagnosed extrauterine pregnancy demands operative intervention," but the time and method of operation may vary. Thus, (1) in the embryonic stage operation per vaginam may be employed; (2) after abortion, and if pregnancy be at the second month or beyond it, operation should be performed as soon as possible even in the absence of alarming symptoms. The operation may be entirely accomplished by colpocœliotomy or begun in this way and completed by laparotomy. In cases of extensive peritoneal inundation laparotomy is best. (4) If a hæmatocele be small and there be no symptoms of incomplete abortion, medical treatment may cure the condition. If it be large, but without symptoms of recurrent hæmorrhage, vaginal intervention is sufficient. If there be repeated hæmorrhage prophylactic colpocœliotomy and curative laparotomy are measures to be adopted.

In a subsequent discussion, Professor Mangiagalli and Truzzi said that they could not regard acetonuria as an important factor in the differential diagnoiss of tubal pregnancy. Professor Truzzi thought that the presence of urobilin in the urine was more distinctive. They also held that very many cases could and should be treated medically, and that where surgical intervention was indicated, abdominal operations were the safest. Colpocœliotomy might be preferred in cases of infective retro-uterine hæmatocele. Professor Pestalozza said he found the presence of acetone in the urine a very valuable guide in diagnosis, and this was more important if it could be proved to disappear and reappear because its oscillations almost always coincided with new attacks of hæmorrhage, and the ascertainment of recurrent hæmorrhages was of importance both for prognosis and for therapeutic treatment. Statistics led him to place most faith in operative intervention, and abdominal methods appeared to be the most reliable. J. H. F.

## Pelvic Hæmatocele: Uterine Fibroid Disease: Rupture of Hæmatic Cyst of Ovary: no Ectopic Gestation.

Tartanson (*Thèse de Lyon*, 1909) has collected in a thesis an instructive review of numerous recent cases of pelvic hæmatocele alleged to be independent of ectopic gestation of any type. He includes Jayle's cases. (See Journal, July 1909, p. 50.) He adds an original observation, where Albertin was the operator. The patient was a single woman, aged 30; there had been no interruption of the catamenia, and there seemed no doubt about virginity, but the reporter dwells on the fact that she was betrothed and that had the hæmorrhage proved fatal the disputed question about the relation of hæmatocele to gestation might possibly have been discussed before a legal tribunal. Another interesting complication, which happened not to be the direct cause of the bleeding, was the presence of a fibromyoma of the uterus. Tartanson reports some cases of hæmatocele due to fibroid, and others have been published recently by Herbert Spencer, etc. In Tartanson's case the patient was seized one night, a fortnight after the last period, with severe paroxysmal pains in the abdomen; in the morning she was sent to hospital. She was a tall, well-nourished woman and not anæmic. Abdominal distension was marked and a firm tumour reached nearly to the level of the umbilicus. The cervix was of the nulliparous type and of normal consistence; no blood issued from the os externum. The fundus could

not be defined, being merged into the hard abdominal tumour, but in the vaginal fornices the mass felt soft and doughy and there was apparently fluctuation in Douglas's pouch. Albertin performed abdominal section. The great omentum was soaked in free blood and appeared ecchymotic owing to clots caught in its meshes. But no bleeding point could be discovered, and on raising it a big cavity full of blood was laid bare. This cavity passed down behind the uterus, which was of the size of a fœtal head, being uniformly enlarged by a fibromyoma. Yet no bleeding proceeded from the uterus. The Fallopian tubes were quite normal. The left ovary bore a hæmatic cyst of the size of a small Tangerine orange, with thin, smooth walls bearing no adherent clot. The right ovary proved to be the source of hæmorrhage; it was the seat of a hæmatic cyst and rather smaller than the similar cyst on the left side, but its wall had given way and from its cavity had issued the blood which was found in the peritoneal cavity. The inner lining of both cysts was smooth; the blood in the left cyst was liquid and free from any abnormal elements. The walls of both cysts were thoroughly examined, numerous sections being made, but no chorionic villi could be detected, nor any other elements suggesting ovarian gestation. The patient's convalescence, after the removal of the uterus and appendages, was uninterrupted. (See De Rouville, JOURNAL, Vol. xiv, 1908, p. 133, for an instance of retro-uterine hæmatocele due to the rupture of a follicular cyst in a micro-cystic ovary exhibiting hæmolymph-angiomatous lesions.) ALBAN DORAN.

## A Lithopædion removed by Operation.

M. S. BALFOUR (*Brit. Med. Journ.*, 1909, vol. ii, p. 1615).—A Hindu woman, a unipara, aged 32, complained of an abdominal tumour. Three years previously she had noticed enlargement of the abdomen with signs of pregnancy. After nine months these disappeared, the menses returned and the abdominal enlargement became smaller, reaching its present size. The tumour was removed by operation. It consisted of a nearly calcified fœtus 7 inches in length attached by long adhesions to the omentum and anterior abdominal wall. There were no remains of placenta. The patient made an excellent recovery. F. E. T.

## Placenta Prævia in General Practice.

A. T. JONES (*Brit. Med. Journ.*, 1909, vol. ii, p. 1614).—In twelve years' general practice Jones has seen six cases of placenta prævia, three occurring in one month. In all his cases the bleeding seems only to have come on during labour. In one case the treatment was expectant; in three, the cervix was gradually dilated, delivery being effected with forceps; and the remaining two cases were complicated by transverse presentation, internal version being performed. All the mothers did well. F. E. T.

## Eclampsia.

A. ZYSKOWITZ (I.D., Berlin, 1909, *Muenchener m. Wchns.*, 1910, S. 40), from a critical statistical review of the cases of eclampsia treated at the Charité from 1904 to 1909 concludes: (1) Primiparæ are more subject to eclampsia than multiparæ. (2) The theory of the dependence of eclampsia upon the weather is very improbable. (3) Eclampsia without convulsions is very rare, but cases of coma equivalent thereto occur. (4) The prognosis of eclampsia in multiparæ is more unfavourable than in primiparæ (28·7 per cent. : 15·1 per cent.). (5) In the majority of cases the fits cease on delivery. (6) The best treatment, therefore, of eclampsia in gravid and parturient women is the prompt evacuation of the womb; when such interference is not delayed more than six hours after the first attack of convulsions the mortality of the mothers does not exceed 3·8 per cent. (7) Moreover, the mortality of the children has been diminished by one-half through immediate delivery. J. J. M.

## Decapsulation of the Kidneys in Eclampsia.

LICHTENSTEIN, Leipzig (*Zentralb. f. Gyn.*, 1910, No. 1) describes three cases of decapsulation of the kidneys for eclampsia, all of which recovered, and one for severe nephritis and uræmia which ended fatally. In the eclamptic cases the operation had a distinctly beneficial effect on the quantity and quality of the urine excreted; the amount of albumen was on the second day only two parts per mille less, but the operation undoubtedly was life-saving. Lichtenstein always performs bilateral decapsulation through a slanting incision alongside the twelfth rib. J. J. M.

## Coal Gas Poisoning in Pregnancy.

TISSIER (*L'Obstétrique*, Dec., 1909) records the case of a servant girl at the end of her pregnancy who tried to commit suicide by coal gas inhalation. She turned on the gas after closing the outlets of the room, and was found eight hours later lying comatose. She was at once transferred to hospital, and under treatment by continuous inhalations of oxygen recovered gradually and completely. Nineteen hours after beginning to inhale the coal gas she gave birth to a still-born child, which was so surprisingly rosy that the midwives in charge could not believe it was dead. Spectroscopic examination of the blood gave no evidence of carbon monoxide poisoning, but, by means of the mercurial pump, it was determined that the blood contained 1·9 per cent. of carbon, that is, that one-fifth of the hæmoglobin was oxycarbonated. In adults the proportion requires to be from half to two-thirds of the hæmoglobin to cause death.

Up till now the literature shows very discrepant results in the researches made as to the passage of carbon monoxide from the mother to fœtus. Dr. Nicloux, who made the blood examinations in this case, had come to the conclusion, from his work on guinea-pigs, that if the mother dies quickly from large doses of gas the fœtus does not receive the gas, but if the mother is slowly poisoned there is plenty of time for the gas to pass to the fœtus. This case bears out his conclusions and demonstrates the truth of the proposition that a young child or fœtus dies with less saturation of the blood than an adult. Unfortunately, enough blood was not obtained to show the maximum saturation possible. E. H. L. O.

## Rupture of the Symphysis during Labour.

L. A. KRIWSKY (*Zentralb. f. Gyn.*, 1910, No. 4) reports the following case:—A septipara, aged 33, whose previous labours had all been normal and easy, though the children weighed from 4,800 to 5,600 grams, was admitted into his klinik after having had two fits of convulsions at home, but the fits did not recur. The liquor amnii was discharged twelve hours after the pains began, the head remaining moveable above the brim of the pelvis which was of a slight rachitic type. Four hours later the head began to engage in the first brow position; chloroform was therefore administered and an attempt made to change the presentation to an occipital one; this attempt was not altogether successful; the brow presentation, however, was changed into a vertex, and Simpson's forceps was applied to the head. During the subsequent traction a distinct sound of crepitation was heard, after which the head entered the pelvis and, though with difficulty, on account of its size, was successfully extracted. The child, weighing 5,800 grams and 56 cm. in length, was alive. After the birth of the child hæmorrhage from the urethra pointed to a rupture of the symphysis, and examination proved this to be the case, the cleft in the pelvis admitting two fingers. When a laceration of the cervix had been sutured the urethral bleeding ceased spontaneously. A bandage was firmly applied round the pelvis. The third stage of labour proceeded without delay or trouble. The patient made water spontaneously after two days, the urine having been free from

blood on the previous day. She had no pain in the symphysis, and a month after delivery could move about freely, though with slight pain in the sacrum where, near the right sacro-iliac joint, a small painful swelling had meanwhile developed. She also suffered for a time from incontinence of urine from which she recovered by degrees. A Röntgengram, taken 7 weeks after delivery, showed a gap of about 1·5 cm. broad at the symphysis, and a hardly perceptible dulness in the right sacro-iliac joint. With the cystoscope a bullous œdema was discovered in the neighbourhood of the sphincter, but no other change whatever. It is to be supposed that laceration of the sphincter occurred at the same time as the rupture of the symphysis and was the cause of the hæmorrhage and later of the incontinence. Three months after her delivery the patient was perfectly able to work. J. J. M.

## Rupture of the Uterus during Labour.

R. W. Lobenstine (*Amer. Journ. Obstet.*, Nov. 1909) bases an exhaustive study of this subject on 46 cases of complete and 29 of incomplete rupture of the uterus together with three cases of rupture of the vaginal vault. They occurred in a series of 60,000 cases of labour treated at the New York Lying-in Hospital. The patients were much more commonly multiparæ than primiparæ; in the cases of complete rupture the proportion was 44 to 5.

The ætiological factors in the 46 complete cases are divided into two groups according to whether the rupture was spontaneous or traumatic. In the first group are pelvic contraction, 21 cases; Cæsarean section scar, 2 cases; scar tissue after amputation of cervix, 1 case; transverse presentations, 3 cases; and hydrocephalus, 1 case. The causes of the traumatic ruptures were: accouchement forcé, 6 cases; internal version, 5 cases; forceps, 3 cases; and embryotomy, 1 case. Three cases are quoted as ones in which the rupture was due to a combination of transverse presentation with version; these might be included in the second group.

As to the mechanism of rupture, the author believes it is in most cases caused by the imprisonment of the lower portion of the cervix between the presenting part, especially the head, and the pelvic brim. This he considers causes the phenomena which are well known as antecedent to the occurrence of rupture.

In dealing of the symptoms and signs of rupture, the author of the paper disagrees with those authorities who record that, when the child has escaped into the peritoneal cavity, the uterus is always firmly contracted. In his experience it has been found in a majority of cases to be large, soft and boggy. In cases of early rupture or of rupture through a Cæsarean scar there may be no premonitory symptoms.

In considering incomplete rupture, the most common types are given as (*a*) the longitudinal laceration, through one side of the cervix, up the vaginal fornix and into the broad ligament; (*b*) a transverse rupture through the cervix into the utero-vesical space.

The mortality in the cases considered was: in complete cases, 73·9 per cent.; incomplete, 27·5 per cent.; and rupture of vaginal vault cases, 33·3 per cent., giving a gross mortality of 53·8 per cent.

The treatment adopted and recommended varies with the degree of rupture. In vaginal vault cases firm tamponnade is advised, with the reservation that when intestine prolapses or gives trouble laparotomy should be at once performed. For incomplete ruptures the author uses tamponnade almost exclusively, combined with pressure from above. Only where hæmorrhage persists, in spite of conservative treatment, does he favour laparotomy. In cases of complete rupture, the author's treatment is influenced by several considerations: (*a*) When the child is *in utero* and there is marked shock or hæmorrhage, it should be delivered at once, and, if possible, a laparotomy performed immediately. If removal of the patient be required before such operation can be performed better results will be obtained by tamponnade.

(*b*) With early diagnosis and small rupture and not much shock, the patient should be transferred to where the operation is to be performed before the delivery is proceeded with. Then packing or laparotomy may be carried out according to the case. (*c*) With the child in the abdominal cavity laparotomy must always be performed. (*d*) With a diagnosis made after delivery careful packing may be used, provided the rupture be not large and the hæmorrhage not great.

In the author's series of cases 29 were operated upon and the mortality reduced to 62 per cent. He believes the best results are to be obtained by laparotomy with suture of the wound, or hysterectomy except in clean cases with slight trauma and hæmorrhage and in very bad cases. J. B. B.

## Spontaneous Rupture of the Uterus after Cæsarean Section.

Richter (*Zentralb. f. Gyn.*, 1910, No. 5, S. 141) reported to the Dresden Gynæcological Society two cases of spontaneous rupture of the uterus after Cæsarean section. In the first case, in spite of a perfectly satisfactory repair of the wound after the Cæsarean section, spontaneous rupture of the enlarging uterus occurred three years afterwards in the fourth month of the second pregnancy; a fistula through the abdominal walls resulted and internal adhesions and growing attachments of loops of the intestine. Labour pains began, but subsided, till in the seventh month, owing to the increase in the size of the uterus, the ruptured spot gave way still further and the adherent intestines were also lacerated, and the liquor amnii was infected by the contents of the bowel. Tempestuous contractions then set in, and the membranes not giving way the os uteri was dilated. The firm adhesions of the abdominal wall to the seat of the rupture prevented the ejection of the child into the peritoneal cavity. A macerated fœtus of 7 months was extracted, a tear 4 or 5 cm. long was found on the anterior face of the fundus through which a sound was introduced through the fistula in the abdominal wall. On abdominal section the omentum and small intestine were found adherent to the laceration in the uterus and a communication between the intestine and the uterine cavity. The seat of the rupture was covered partly by the adherent abdominal wall, partly by omentum and intestine, so that there was no free communication with the abdominal cavity The intestinal wall was sutured in three stages, the stump of the uterus sewn in after removal by Porro's method; but the operation had to be rapidly completed without drainage owing to the patient's condition, and she died 56 hours afterwards. She might perhaps have been saved by an operation at the fourth month.

The second case, a woman aged 21 years, had had Cæsarean section performed some years previously in the seventh month for eclampsia, and had a feverish childbed. She had had a slight hæmorrhage five weeks before admission and a sudden profuse one at night three weeks afterwards. The doctor summoned next day introduced a metal bougie and plugged the vagina, and the bougie remained *in situ* for three days. The bleeding apparently ceased for the time. The same doctor introduced a tent eight days later, and it was retained for two days. The day before the patient's admission the bleeding began again, was very profuse and lasted till evening. No pains were reported, but must have occurred. On admission her abdomen was distended and intensely tender; the portio was conical and closed. The child's parts could not be felt. Temperature 38·9°, pulse 140; rigors and vomiting already for several days. Tympania uteri seemed to be the condition, and after dilatation by Hegar's sounds a small metreurynter was introduced and led to the discharge of a small quantity of stinking fluid and fœtid gas.

As there were hardly any pains the metreurynter was soon removed and a Porro decided upon. The opening of the peritoneum was followed by a hissing escape of extremely foul gas and a large quantity of brownish, turbid, greasy fluid. Everything seemed to be in a state of putrefaction; one might have been performing an obduction

rather than a laparotomy. The child, extremely macerated, lay in the peritoneal cavity, the placenta adhered to loops of intestines glued together by greenish membrane, and the intestinal wall was so fragile that it could hardly be prevented from giving way as the placenta was detached. It was only after the removal of a quantity of half-putrified membranous exsudation that the uterus, moderately enlarged, was exposed in the smaller pelvis.

A gaping tear, 5 cm. long, was found in the right horn to the side of the old cicatrix; the adnexa were normal; the uterine tissue, especially near the tear, was so friable and rotten that it could not be held in Muzeau's forceps. After the removal of all destroyed tissue possible, an attempt was made to fix the uterus below the seat of the tear to the abdominal wall, but the whole of the right half of the uterus tore off like tinder; the ligatures on the uterine vessels cut right through the rotten tissues, but at last the Porro was completed, the adnexa being left on account of the patient's age. Drainage tubes were sewn into incisions in each flank, and a third left between the symphysis and the uterine stump through which much brownish black matter was brought by daily washings out. The patient was discharged well on the 62nd day.

Perforation had no doubt resulted from the metal bougie being left so long *in situ*; the condition of things showed that the rupture which was at the side of the old cicatrix, must have taken place from 10 to 14 days before the operation, the onset of uterine contractions having forced the child and placenta into the peritoneal cavity.

Cases of spontaneous rupture after Cæsarean section are rare; besides these two Richter has only met with one. According to Nacke, Olshausen only saw one in 120 cases.

Leopold remarked that in all the many cases of Cæsarean section seen in the Dresden Klinik he had seldom seen any yielding in the uterine cicatrix; such when it did occur generally depended on inflammation of the uterine suture with stitch abscess and discharge of the pus upon the outer abdominal wound, on which in two cases gonococci had been found, perhaps due to a latent gonococcic endometritis becoming acute during childbed.

It is, however, well recognized that spontaneous rupture of even an entirely sound uterus may be caused in the early months of gestation by accidental injury, for instance by a fall. He mentioned an instance he had himself published in the Archiv, one of a supposed primary full term extrauterine pregnancy in which, after the removal of the dead fœtus, it was found that the umbilical cord passed through a hole in the posterior uterine wall to be inserted in a normally seated placenta. It appeared from the history of the case and a careful examination of the anatomical conditions, that in the fourth month of gestation spontaneous rupture had been caused by a fall downstairs and that the child and cord had passed into the peritoneal cavity, while the placenta remained in its normal position, and so the child had been nourished to term. J. J. M.

## A successful Conservative Cæsarean Section in Absolute Contraction of the Pelvis following Fracture.

B. J. Plastunow (*Zentralb. f. Gyn.*, 1910, No. 4, S. 117) reports: A woman, of 34 years, who had had five spontaneous labours, after being buried by a landslip, was laid up for a long time, and for three months could not move her legs at all, and a year and a half afterwards was still lame. She was brought to the klinik after being three days in labour, and having been repeatedly examined by the village midwife. Internal examination revealed hard exostoses from the sacrum and from the rami of the pubes and ischia which constituted an absolute contraction of the pelvis: the diagonalis was only 7·5 cm. in length. A full term living child was delivered by median Cæsarean section, and after discharge of an exsudate by the rectum and the healing of some stitch abscesses in the abdominal wound the woman was discharged well. J. J. M.

# REPORTS OF SOCIETIES.

## THE ROYAL SOCIETY OF MEDICINE.

### Obstetrical and Gynæcological Section.

*Meeting held Thursday, January 13, 1910, the President* (Dr. H. Macnaughton-Jones) *in the chair.*

Dr. J. Inglis Parsons reported a case of

**Prolapsus Uteri with Severe Cardiac Disease Operated on under Local and Spinal Analgesia.**

The patient, a woman, æt. 39, had had three children, the youngest was five years of age. She complained of bearing-down pains and falling of the uterus, which had been treated with pessaries without relief. On admission to the Chelsea Hospital for Women the patient was found to have a systolic mitral murmur, and systolic and diastolic aortic murmur. The pulse was a little irregular and had the typical water hammer character of aortic regurgitation. Her general condition, however, was good. On vaginal examination the cervix was found to be enlarged and to present an erosion, the perinæum was torn through to the sphincter ani and there was prolapse of both vaginal walls. I determined to attempt injection with quinine solution of the broad ligaments for the prolapse under local analgesia.

After treatment in bed for ten days the right broad ligament was injected first with 80 minims of my quinine solution after one drachm of saline solution containing one-sixth of a grain of eucaine B. had been injected into each broad ligament. The first injection of the quinine caused a good deal of pain and the patient became distinctly faint, the pulse being hardly perceptible. The hypodermic administration of strychnine caused rapid improvement, and the second injection into the left broad ligament was then carried out. This caused almost as much pain and faintness as the first injection, but the patient recovered from it more quickly.

Three weeks after the operation she left the hospital wearing a metal pessary.

Although I did not expect a very good result owing to the dilution of the quinine by the eucaine, yet when she came up to the hospital at the end of five months the uterus was in good position and well held up, and she was able to do without the pessary.

As the ruptured perinæum still caused her a good deal of trouble she was re-admitted into the hospital for the purpose of having this operated upon. In view of the condition of her heart I recommended that the operation should be performed under spinal anæsthesia, and to this she consented.

One cubic centimetre of a 5 per cent. solution of tropococaine, therefore, was injected into the spinal theca between the third and fourth lumbar vertebræ by the house surgeon, Mr. T. C. Clare. After waiting five minutes the patient was placed in the lithotomy position, and anæsthesia was found to be satisfactory. Throughout the operation the pulse maintained its ordinary rate and there was no evidence of any cardiac distress. Two hours afterwards she felt faint, and actually fainted shortly afterwards; this was no doubt due to the head of the bed having been raised eight inches for the purpose of limiting the upward diffusion of the tropococaine solution.

It has been said that severe cardiac disease is a contraindication to the use of

spinal analgesia. This case is of interest as showing that the method may be employed for operation on the pelvis, even where severe valvular lesions of the heart exist.

Dr. CUTHBERT LOCKYER then read a paper on

PELVIC HÆMATOMA OF OVARIAN ORIGIN.

Mr. STANLEY BOYD has kindly given me the details of two interesting cases operated upon by him for supposed acute appendicitis, but which proved to be cases of pelvic hæmatocele in which there was no evidence of pregnancy. In both instances the Fallopian tubes were intact, and not damaged, in both an ovarian blood cyst had ruptured and was the cause of the internal bleeding.

To these two cases of ovarian hæmorrhage not due to gestation I add a third, by the kind permission of Dr. Amand Routh, in which, after the left tube had been removed for ruptured ectopic gestation, a pelvic hæmatocele formed on the right side, due to ovarian bleeding. In this case and in one of Mr. Boyd's two cases I have sought, by microscopic investigation,, to find proof of ovarian gestation, but no evidence thereof has been obtained.

CASE I. A healthy young woman was taken ill with diarrhœa and abdominal pain. This began in the morning and became worse by night, when she was seen by her doctor. The pulse-rate was 100 and the temperature 99·5° The next day, in the evening, the pain was worse, the pulse-rate had increased to 120 and the temperature was 100°. The following day there was some general tenderness and distension of the abdomen. Nothing could be felt per rectum. When seen by Mr. Boyd the diagnosis of appendicitis was made. After making an incision outside the right rectus muscle, which revealed the presence of merely a little clear fluid, the abdomen was opened again by a paramedian incision and an hæmatocele was exposed. The left Fallopian tube was a little red and the ampullary end somewhat swollen. The orifice was patent, but not large, and no blood could be squeezed from it. No trace of a fœtus could be found. The left ovary was represented by a thick-walled (⅛ inch) ruptured collapsed cyst and was surrounded by clot. It and the right ovary, which was a mass of small cysts, were removed. The patient made a good recovery.

CASE II. A single young woman was seized while at a dance with pain in the right iliac region. The pain continued, but became rather less until the following morning, when it recurred severely. She was seen by her doctor, who found her looking very ill with a rapid feeble pulse, and considerable tenderness over the right iliac region. In the afternoon the pulse-rate was 120 and the temperature 99°. Mr. Boyd saw her in the evening and found her looking better, but writhing with pain.

No pelvic examination was made, but a provisional diagnosis of early appendicitis was made. An incision outside the right rectus muscle revealed a mass of clot in the position of the right ovary. Through a paramedian suprapubic incision about one pint of recent blood clot was removed. The right ovary was adherent to the pelvic wall in the normal position and was surrounded by blood clot. On its anterior free surface there was a rent in the wall of a cyst, which had a diameter equal to that of a florin. The tube was apparently normal. The left ovary contained a cyst the size of a cob nut. This was opened and its lining membrane removed. The patient made a good recovery. This patient previously had been under treatment for dysmenorrhœa. The last period ended one week before the hæmatocele formed.

Microscopic examination of the removed ovary showed that the origin of the bleeding was a corpus luteum which had matured at the last menstrual epoch, namely, a week prior to the date of the operation. The opposite ovary contained no corpus luteum. There must have been one present which ripened and discharged an ovum within a few days of the operation. The only compact lutein tissue to be

found is that seen in the blood clot of the ruptured cyst, and the unavoidable conclusion is, that this torn cavity represents the recent corpus luteum. I referred to the possibility of a retrograde corpus luteum behaving in this way in a paper published by me in the *Trans. Obstet. Soc., Lond.*, Vol. xlvii, pp. 164–165.

Case III. A married woman was admitted into Charing Cross Hospital and operated upon by Dr. Amand Routh as an emergency case. At the time of the operation she was collapsed as the result of repeated recent hæmorrhage. The abdomen contained a large quantity of fluid blood. The left tube was ruptured in its outer half, and adherent to it was a mass of blood clot. The tube and ovary were removed and the patient made a good recovery. She was again admitted 16 months later, complaining of pain in the right groin. She had been married eleven years and had three children. She had been quite well since leaving the hospital until November, one month before her admission on this occasion.

On November 18 the period started in the morning, and on the evening of the same day violent pain in the right groin set in, which went on until the evening of the following day. The pain was much relieved by fomentations. The period ceased the afternoon of the day it commenced, but began again five days later.

The loss was slight, but offensive, and continued for six days. On examination, the uterus was found to be anteverted, and there was a round, hard body, the size of a cricket ball, to its right in the pouch of Douglas. Five days after admission Dr. Routh opened the abdomen and found the pouch of Douglas partly filled with blood, while the right ovary was also distended with clot, and presented a large rent on its surface. The tube was intact, but its fimbriated end was closed. The case was regarded as one of ovarian gestation, and the parts removed were given to me to examine.

A careful examination of the ovary showed no signs of gestation. A section of the wall of the cyst showed the lutein convolutions of a mature follicle still *in situ*. There was extravasation of blood into the stroma of the ovary, into the theca interna, and into the lutein convolutions, while engorged capillaries filled with red discs could be seen in the delicate connective-tissue which keeps the lutein convolutions together.

In bringing these cases before the notice of the Section my object is to ascertain if any of the Fellows have met with similar experiences.

Dr. A. E. Giles said that he had met with a case resembling that described by Dr. Lockyer. The patient presented symptoms pointing to a tubal gestation, and at the operation the left appendages and the right tube were normal, but there was a rent in the right ovary. The case was thought to be one of ovarian pregnancy, but a careful examination of the ovary by Dr. Lockyer showed that there were no signs of any such gestation present.

Eight months later the patient was readmitted to the hospital with similar symptoms, and on this occasion the left ovary showed a rent with blood clot attached. The following report was given by Dr. Lockyer:—"The specimen reveals the presence of very degenerate chorionic villi in the free blood clot. This was attached to the top of a hæmorrhagic area on the upper pole of the ovary. This area on examination showed a corpus luteum distended with clot and lined by very degenerate lutein cells. In this clot there are no villi, but it is quite probable the ovum was once inside it."

The history of the case left its exact nature doubtful. It might have been a double ovarian pregnancy, or a repeated hæmatocele due to a ruptured lutein hæmatoma, or a luetin hæmatoma in the first instance, and an ovarian pregnancy in the second.

The President said he thought it had been shown for some years that pelvic hæmatocele might occur independently of the presence of a gestation, and the

differentiation of the two classes, that which was of gestational origin and that which arose from a corpus luteum and was associated with lutein changes, he had embodied in the last edition of his book. He had had cases which undoubtedly were not due to gestation.

Dr. BLACKER said he thought he had met with a case of this kind. The patient, a young girl, æt. 19, a virgin, was admitted into University College Hospital with a history of acute abdominal pain. The pain had commenced suddenly two days before the period was due, and was followed by the formation of an abdominal tumour which gradually increased in size. The periods had been regular, and the last period occurred at the proper date, and was normal in amount. Dr. Herbert Spencer opened the abdomen and found a large hæmatocele, which was removed, and the cavity drained. The patient made a good recovery. There was nothing to suggest pregnancy, and there seemed no reason to doubt that this was a case probably of hæmorrhage from a ruptured Gräafian follicle in the ovary.

Mrs. SCHARLIEB read a paper on the

PROPORTION OF MALIGNANT TO INNOCENT OVARIAN GROWTHS,

based on a consecutive series of 150 cases. Of the 125 innocent growths there had been paucilocular 48, multilocular 42, adenomata 10, papillomata 2, dermoid 16, corpus luteum 2, lutein cysts 1, fibroma 3, fibro-myoma 1. Of the 25 malignant cases, there were papilliferous cysto-carcinomata 13, adeno-carcinomata 7, sarcomata 4, and uncertain 1.

In this series of 150 cases no growth was included smaller than a hen's egg, and very few smaller than a lemon. The proportion of malignant to innocent cases worked out as one-sixth; the average age of the malignant cases was a little over 46 years, and of the innocent cases about 35 years. The immediate mortality of the malignant cases was 20 per cent., whereas only 2 died of the 125 non-malignant cases; of these deaths one was due to the slipping of a ligature, and the other to a large suppurating cyst universally adherent and not removable.

With regard to the question of whether malignant ovarian growths are primary or secondary, it was found that of 25 cases, 5 were probably secondary, 2 to cancer of the stomach, 2 to scirrhus of the mamma, and 1 to sarcoma of the uterus.

Mrs. Scharlieb laid stress upon the fact that, considering the impossibility of making a correct naked eye diagnosis as to the nature of the growth, it was important that all should be submitted to microscope investigation by a competent pathologist; she also emphasized the necessity for removing ovarian growths intact in all cases where it was surgically possible; she advanced a plea for better equipment and remuneration of pathological research, and pointed out the difficulties of the present chaotic system of classification.

Dr. AMAND ROUTH agreed with Mrs. Scharlieb as to the difficulty of classifying papillomata of the ovary, especially with regard to their malignancy. He believed that almost all varieties of papillomata developing on the inner surface of an ovarian cyst were likely to take on a malignant character. Apparently, Mrs. Scharlieb had used the word "papilloma" in a non-pathological sense from the naked-eye appearance only.

Thus ovarian papillomata in two cases were stated to have been secondary to scirrhus of the breast. His own cases showed 10 per cent. of true cancer, 4 per cent. of malignant papilloma, and 16 per cent. were dermoids. He hoped that some generally recognised classification of ovarian tumours would soon be arrived at, especially as regarded the question of their malignancy.

Mr. B. GLENDINING offered some figures on the relative malignancy of ovarian tumour taken from the pathological records of the Chelsea Hospital for Women for the years 1908 and 1909. Among 106 cases of ovarian tumours (follicular, lutein and tubo-ovarian cysts being excluded), the relative malignancy was 17 per cent.

(11·3 primary carcinoma, and 5·7 secondary carcinoma). The primary malignant cases were composed of columnar-celled carcinoma, 5·7 per cent.; endothelioma, 1·8 per cent.; and sarcoma, 3·8 per cent. From an examination of the Cancer Register of the Middlesex Hospital he had found that the incidence of secondary carcinoma of the ovary for all cases of carcinoma in a series of 690 post mortem examinations was 5 per cent. These secondary carcinomata could readily be divided into two groups, namely, those arising as the result of direct extension from neighbouring viscera, and those the result of dissemination from a distance *viâ* the peritoneal cavity. A striking fact was the frequency with which secondary carcinoma was engrafted upon a pre-existing cystadenoma. He had encountered four cases of this kind during the past year.

Dr. W. S. A. Griffith referred to the difficulty of the exact diagnosis of many cases of ovarian tumour, and wished to ask Mrs. Scharlieb if the diagnosis in her 25 cases was from pathological as well as from clinical characters? If not, he doubted if there were not some cases included which were not malignant.

The President said he had gone through the records of 100 cases of removal of the ovaries for various growths and degenerations. Of this number there were five carcinomata, three of these being adeno-carcinomata, one sarcoma, one malignant papillary dermoid, and one papillary carcinoma. All the remainder were benign, including two fibroma, and two adeno-fibroma. He obtained a series of statistics from the foreign clinics of a few personal friends. Analyzing the total of 2,893 cases, the records of 1,405 show that 659 were unilateral, 386 bilateral. Of the entire number, 309 were indisputably malignant. Of the latter growths, 189 were epitheliomatous degenerating cysts, and 18 were not differentiated, 32 adeno-carcinomatous cysts, 28 proliferating papillomata, 22 sarcoma, 18 various types of carcinoma, as glandular and papillary adenoma, and cystadenoma, solid malignant adenoma, malignant dermoid adenoma, and 1 endothelioma. Of the 41 cases of which there is a record of the unilateral or bilateral occurrence, 26 were unilateral and 15 bilateral. With regard to primary or secondary growths, it was often extremely difficult to say whether a growth was primary or not, so frequently were the adjacent viscera involved. At present a great deal of confusion existed as to the differentiation of benign and malignant tumours of the ovary. He noticed that there was no case of malignancy from a dermoid tumour in Mrs. Scharlieb's list. One clinical feature which had struck him in these cases was the almost entire absence of pain.